'He Called his Partner_Hence He is Needy'
A Mixed-Design Investigation of Spontaneous Trait Inferences and Depression

Boecking, Benjamin

Awarding institution:
King's College London

Look, I don't want to offend you, but if you were going to write a book, you'd have done it.

James Herriot's wife

Volume I

[Main Research Project
Service Evaluation Project]

Benjamin Boecking, Dipl-Psych, PhD

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Department of Psychology, Institute of Psychiatry
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Main Research Project

‘He Called His Partner - Hence He Is Needy’: A Mixed-Design Investigation of Spontaneous Trait Inferences and Depression

Supervised by Drs Thorsten Barnhofer and Jon Wheatley

Abstract

Background: Depressive disorders are highly prevalent and often take a persistent course. A considerable body of research shows that depression undermines interpersonal functioning and thereby increases stress, thus contributing to the maintenance of the disorder. However, relatively little is known about the cognitive mechanisms underlying this [interpersonal] stress generation. The present study investigated social perception in depression; in particular (1) whether depressed patients (DPs) are more prone to make spontaneous trait inferences (STIs; a tendency to spontaneously ascribe personality traits to others based on ambiguous information) than healthy controls (HCs); (2) whether the tendency to make such STIs predicts [interpersonal] daily hassles or, more broadly, depression severity; and (3) how this tendency relates to other vulnerability factors for depression such as overgeneral memory (OGM), childhood maltreatment, neuroticism and dysfunctional attitudes (DAs).

Method: Twenty DPs and 20 age and gender matched HCs completed a novel experimental task to assess STIs, the autobiographical memory task to assess OGM, and a number of questionnaire measures assessing vulnerability factors. Participants then reported mood ratings and [interpersonal] daily hassles over a follow-up period of one week.

Results: DPs showed significantly higher levels of STIs, OGM, an index of childhood maltreatment, neuroticism and dysfunctional attitudes. Within DPs, STIs correlated with indices of childhood maltreatment and depression severity. Across participants, but not within DPs, correlational analyses revealed significant positive relations between STIs and interpersonal daily hassles. Exploratory mediation analyses demonstrated that STIs accounted for relationships between childhood maltreatment / dysfunctional attitudes and concurrent depressive symptoms. OGM mediated the relationships between (1) vulnerability factors and depression severity, and (2) depression severity and daily hassles.

Discussion: The findings suggest that DPs have an increased tendency to ascribe trait characteristics to other people which may, in parallel with depressive symptomatology, contribute to the elicitation of [interpersonal] daily hassles. Such difficulties are even more likely to occur in individuals who have suffered from childhood maltreatment. DPs may benefit from interventions aimed at elaborating person perception or reducing overgeneral memory.

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Abbreviations

AMT	Autobiographical Memory Task
ANCOVA	Analysis of Covariance
ANOVA	Analysis of Variance
BAI	Beck Anxiety Inventory
BDI-II	Beck Depression Inventory II
CBT	Cognitive Behavioural Therapy
CLT	Construal Level Theory
CPA	Childhood Physical Abuse
CSA	Childhood Sexual Abuse
CT	Cognitive Therapy
CTQ-SF	Childhood Trauma Questionnaire - Short Form
DAs	Dysfunctional Attitudes
DAS-A	Dysfunctional Attitudes Scale - Form A
DHUS	Daily Hassles and Uplifts Scale
DPs	Depressed Patients
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders - 4th Edition
E	Extraversion
EM	Expectation Maximization
EPQR-S	Revised Eysenck Personality Questionnaire - Short Form
FRP	False Recognition Paradigm
GIQ	General Information Questionnaire
HCs	Healthy Controls
IAPT	Improved Access to Psychological Therapies
ICD-10	International Classification of Diseases - 10th Edition
ISG	Interpersonal Stress Generation
M	Mean
MCAR	Missing Completely at Random
MDD	Major Depressive Disorder
MDE	Major Depressive Episode
MDI	Major Depression Inventory
N	Neuroticism
NEm	Negative Emotionality
NFA	Need For Approval
NHS	National Health Service
OGM	Overgeneral Memory
PD	Personality Disorder

PE	Performance Evaluation
PEm	Positive Emotionality
SCID-I	Structured Clinical Interview for DSM-IV - Axis I Disorders
SCID-II	Structured Clinical Interview for DSM-IV - Axis II Disorders
SD	Standard Deviation
SE	Standard Error
SPSS	Statistical Package for the Social Sciences
STIs	Spontaneous Trait Inferences

To some extent we are all the prisoners of stereotypes; we see each other in terms of distorted and oversimplified images. Better communication in the realm of ideas, of the arts, and of science can help refashion these false images. And by seeing more clearly we may act more wisely.

Chester Bowles, The Conscience of a Liberal

Introduction [Brief Literature Review]

Major Depressive Disorder

Phenomenology

Recurrent Major Depressive Disorder (MDD)[1] is one of the most prevalent mental disorders, with multiple causes, complex - often seemingly contradictory - symptomatology and a broad spectrum of severity. According to the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV; American Psychiatric Association, 1994), the diagnosis of MDD is given if an individual has suffered from two or more major depressive episodes (MDEs) which were separated by an interval of at least 2 months without clinical symptoms. MDEs are defined as a period of at least two weeks during which an individual shows at least one core symptom of (1) depressed mood or (2) loss of interest or pleasure in life activities, and five or more of the following symptoms which cause clinically significant impairment nearly every day: (1) depressed mood most of the day; (2) markedly diminished interest or pleasure in almost all activities; (3) significant weight loss or gain / decrease or increase in appetite; (4) insomnia or hypersomnia; (5) psychomotor agitation or retardation; (6) fatigue or loss of energy; (7) feelings of worthlessness / excessive or inappropriate guilt; (8) diminished ability to think or concentrate / indecisiveness; or (9) recurrent thoughts of death.

MDD has a lifetime prevalence of 16.6% (Kessler, Berglund, et al., 2005) and a 12-month prevalence of 6.7% (Kessler, Chiu, Demler, & Walters, 2005). MDD is more common in females than males with a respective ratio of approximately 2:1 (Kessler, 2003). MDD typically onsets in adulthood (median = 32 years) with approximately 50% of sufferers reporting an onset between 18 and 59 years (Kessler, Berglund, et al., 2005). It frequently follows a recurrent course with approximately 75% of individuals reporting more than one depressive episode (Kessler, Zhao, Blazer, & Swartz, 1997). MDD is frequently accompanied by a variety of secondary or primary comorbid disorders such as anxiety, substance use or physical disorders (Kessler, Zhao, et al., 1997).

[1] For variety of expression, the terms Major Depressive Disorder (MDD) and depression are used synonymously throughout this thesis.

MDD is one of the main causes of disability worldwide and a major contributor to the global burden of disease, ranking fourth on a worldwide index of years lived with a disability adjusted for severity (Murray & Lopez, 1997).

Aetiology

Research has identified numerous risk factors which predict the onset or course of MDD. However, no single risk factor accounts for the emergence of the disorder. Rather, multiple biological and environmental risk factors interact within a 'vulnerability-stress' framework to increase *cognitive vulnerability* for depression. This cognitive vulnerability may then interact with external stressors (such as major life events) - eventually leading to a phenotypical manifestation of the disorder. Once emerged, MDD may be maintained by a variety of maladaptive cognitive and/or behavioural processes that require less and less stressful external contributions.

The body of risk factor research in depression is vast and has suggested various complex biopsychosocial pathways which increase individuals' vulnerability for depression. Biological vulnerability factors comprise, among others, (1) the genetic transmission of vulnerability factors for MDD or non-specific disorder-related traits such as temperamental style (Sullivan, Neale, & Kendler, 2000), (2) neurobiological dysregulations of endocrinological (Joffe, 2011) or neuromodulatory transmitter systems (Von Wolff, Hölzel, Westphal, Härter, & Kriston, 2013), or (3) physiological factors including abnormalities in brain structure (Koolschijn et al., 2009) and/or function (Leppänen, 2006). Similarly, research has identified numerous environmental vulnerability factors such as (1) the occurrence of stressful life events (Kendler, Karkowski, & Prescott, 1999) or (2) adverse experiences during infancy and childhood (including dysfunctional child rearing factors, parental psychopathology, or childhood maltreatment). Biopsychosocial accounts of depression have further investigated the relationship between personality and MDD.

The present study focussed on the role of cognitive and interpersonal factors in the maintenance of depression. However, in order to provide a broader context, the following sections will provide a brief overview of vulnerability factors for depression drawing from a number of recent reviews (Gotlib & Hammen, 2009; Hammen & Watkins, 2008; Hankin, Abramson, Miller, & Haeffel, 2004). Findings have been updated with the latest research findings where applicable.

Risk factors.

Temperament.

Risk factor research has identified early temperamental factors as possible precursors of MDD in childhood and adolescence (Hankin et al., 2004). Temperament refers to a set of innate physiological characteristics which determine how newborn infants tend to interact with the environment (Rothbart, 2007). These biopsychological tendencies then interact with acquired behaviours to eventually constitute adult personality.

Factor analytical research has identified two major temperamental dimensions which are of particular importance for depression: negative (NEm) and positive emotionality (PEm) (Compas, Connor-Smith, & Jaser, 2004). NEm - which is conceptually related to neuroticism (Compas et al.,

2004) - involves an innate tendency towards experiencing discomfort, fear, anger, sadness and irritability. Conversely, PEm - which is conceptually related to extraversion (Mervielde, De Clercq, De Fruyt, & Van Leeuwen, 2005) - involves a tendency towards being receptive to reward, sociable, sensation seeking and actively involved with one's environment (Compas et al., 2004).

Several studies in children and adolescents have supported the suggestion that NEm and PEm are positively or negatively related to depression respectively (Anthony, Lonigan, Hooe, & Phillips, 2002; Chorpita, 2002; Enns & Cox, 1997). Analogous to the 'tripartite model of depression' (Clark & Watson, 1991) which postulates that depression is characterised by (1) general distress and (2) the absence of positive affect, some studies have reported that temperament and depression in children and adolescents are related through both non-specific (high NEm) and specific temperamental factors (depression: low PEm) (Anthony et al., 2002; Phillips, Lonigan, Driscoll, & Hooe, 2002). In line with this view, some studies have found that an interaction of high NEm *and* low PEm predicted subsequent depressive symptoms in adolescents and young adults (Gershuny & Sher, 1998; Wetter & Hankin, 2009). For example, investigating a sample of $N = 74$ youth psychiatric inpatients, Joiner and Lonigan (2000) reported that the high NEm by low PEm interaction predicted changes in depression over time. By contrast, however, other studies failed to find such an interaction (Jorm et al., 2000; Kendler, Gatz, Gardner, & Pedersen, 2006; Verstraeten, Vasey, Raes, & Bijttebier, 2009).

Longitudinal studies have further found that both high NEm and low PEm predicted later depressive symptomatology in adulthood (Block, Gjerde, & Block, 1991; Caspi, Moffitt, Newman, & Silva, 1996; van Os, Jones, Lewis, Wadsworth, & Murray, 1997).

Investigating moderating effects of temperament, Lengua et al. (2000) investigated a sample of $N = 231$ mother-child dyads and found that children who were low in PEm showed more adjustment problems upon experiencing parental rejection than children who were high in PEm. In addition, research has begun to identify mediational pathways through which temperamental factors may be linked to vulnerability for MDD. For example, high NEm has been shown to contribute to depression via (1) increased interpersonal stress generation (Wetter & Hankin, 2009), (2) more pronounced dysfunctional attitudes (Lakdawalla & Hankin, 2008), or (3) maladaptive responses to negative affect (Yap et al., 2011). Conversely, low PEm has been found to be associated with depression via reduced social support (Wetter & Hankin, 2009).

Personality.

The (inter)relationship between personality and depression is complex. For example, personality has been argued to (1) share common genetic variance with depression, (2) be a phenomenological precursor of depression, (3) predispose individuals to developing depression, (4) influence the expression of depression, (5) *be* temporarily affected by depression, or (6) be lastingly changed by depression (Bagby, Quilty, & Ryder, 2008; Klein, Kotov, & Bufferd, 2011). Personality is usually characterised by factorial models wherein particular individual traits are summarised into lower-order factors which are then further clustered into three to five highest-order factors.

Regarding MDD, two such factors have received particular attention: (1) neuroticism (N) and extraversion (E). Whilst N describes an individual's susceptibility to react to negative stimuli with negative emotions such as sadness, fear, guilt, or anger, E describes an individual's tendency to experience or display positive affect, affiliation, energy or dominance (Klein, Durbin, & Shankman, 2009). Theoretical accounts have postulated that depression is characterised by high N and low E (Clark, Watson, & Mineka, 1994; Clark & Watson, 1991), and a recent meta-analysis concluded that individuals with depression were consistently characterised by high levels of N. By contrast, findings regarding low E were more incoherent (Kotov et al., 2010).

Several authors have argued that self-reported N might be biased by concurrent low mood and whilst some studies have reported a confounding association between low mood and increased self-reported levels of N (Kendler, Neale, Kessler, & Heath, 1993; Ormel, Oldehinkel, & Vollebergh, 2004), other studies have shown that remitted patients continued to score highly on N relative to the general population (De Fruyt, Van Leeuwen, Bagby, Rolland, & Rouillon, 2006; Morey et al., 2010). Moreover, clinical trials have shown that changes in depression were not accompanied by changes in personality (Quilty, Meusel, & Bagby, 2008; Tang et al., 2009).

Similarly to prospective research on temperament, several longitudinal studies have reported that high levels of N are predictive of first-onset MDD (De Graaf, Bijl, Ravelli, Smit, & Vollebergh, 2002; Fanous, Neale, Aggen, & Kendler, 2007; Kendler et al., 2006, 1993; Ormel et al., 2004). For example, Fanous et al. (2007) used structural equation modelling to investigate interrelationships between major depression, N and E in a sample of N = 3030 male twins who were measured twice over a period of at least one year. Results indicated that N both predicted onset of MDD and was associated with current or past MDD. Again, evidence for the impact of low E was more inconsistent with some studies finding low E to predict later depression (Kendler et al., 2006) and others not (Fanous et al., 2007; Kendler et al., 1993).

Dynamic models of personality-mood relationships have further investigated moderating and mediating factors which might influence or account for the link between N and MDD. For example, several studies have reported that high N and stressful life events interacted in predicting first-onset depression (Kendler, Kuhn, & Prescott, 2004a; Ormel, Oldehinkel, & Brilman, 2001; van Os & Jones, 1999). Moreover, mediation research has suggested that N might influence depression via its propensity to generate stressful life events which are subsequently associated with depression in both adolescents (Kercher, Rapee, & Schniering, 2009) and adults (Hutchinson & Williams, 2007; Lahey, 2009; Middeldorp, Cath, Beem, Willemsen, & Boomsma, 2008).

In summary, MDD seems to be robustly associated with high levels of NEm (in children and adolescents) and N (in adults). By contrast, the relationship between low PEm/E and depression appears less consistent, constituting N as an important, albeit non-specific vulnerability factor for MDD (Clark, 2005; Kotov, Gamez, Schmidt, & Watson, 2010).

Stressful life events.

The association between stressful life events and depression has been subject to extensive research. In these studies, life events have been categorised as recent major negative life events, minor life events (*daily hassles*), or past, more distal, life events such as childhood maltreatment (Hammen & Watkins, 2008). Each group will be briefly reviewed in the following sections.

Recent major life events.

It is a well-established research finding that stressful life events precipitate the onset of many depressive episodes (Brown & Harris, 1989; Kessler, 1997; Paykel, 2003). Moreover, this relationship appears particularly strong for *severe* life events (such as those involving fundamental threats to core relationships or occupation [Monroe, Slavich, & Georgiades, 2009]).

In contrast, minor stressful events appear to have much less predictive aetiological value (Monroe & Simons, 1991). Moreover, life events have been shown to predict the onset of depression in individuals who are cognitively vulnerable (i.e. who are characterised by a negative cognitive style[2] including their endorsement of dysfunctional attitudes [cf. pp. 22-23]) (Hankin et al., 2004; Olinger, Kuiper, & Shaw, 1987; Scher, Ingram, & Segal, 2005); suggesting that cognitive vulnerability may moderate the life events-depression relationship.

Other studies have focussed on the impact of stressful life events on the course of MDD. Whilst it has long been observed that, over time, depressive episodes can be triggered by successively less severe stressors (Monroe & Harkness, 2005; Tennant, 2002), there are competing hypotheses to account for this observation. It is conceivable that the impact of stressful life events *decreases* over time whilst non-stress-related factors become more important (*stress autonomy hypothesis*). Alternatively, their impact could *increase* as less and less severe events become sufficient to trigger a depressive episode (*stress sensitization hypothesis*). Current evidence for these hypotheses remains mixed (Monroe & Harkness, 2005; Stroud, Davila, & Moyer, 2008) and further research is needed to establish the validity of each model.

In summary, although research has established a robust relationship between recent major life events and the onset or course of depression, further research is needed to identify intrapersonal variables which may account for interindividual differences in stress responses.

Minor life events (daily hassles).

Although minor stressful life events have generally been considered to have a lesser impact on depression, several studies have investigated the role of daily hassles in the onset or maintenance of depression in vulnerable patients and non-clinical individuals. For example, in two early studies, Lewinsohn and colleagues identified a number of unpleasant events which, albeit occurring with similar frequency in depressed and non-depressed individuals, were associated with

[2] *Negative cognitive style* generally refers to a cluster of cognitive conspicuities in depression comprising both DAs and - in line with the helplessness/hopelessness model of depression (cf. p. 21) - a particular *negative attributional style*, wherein depressed individuals tend to attribute negative events to stable, global and sometimes internal causes, hence heightening feelings of hopelessness, guilt, or low self-worth respectively. For parsimony, attributional style literature will not be reviewed separately.

low mood and high aversiveness ratings in depressed individuals (Lewinsohn & Amenson, 1978; Lewinsohn & Talkington, 1979). By contrast, one recent study reported that depressed individuals *did* report more daily hassles than non-clinically depressed or non-depressed individuals (McIntosh, Gillanders, & Rodgers, 2010).

Research in non-clinical populations has consistently highlighted associations between daily hassles and low mood (Abela & Skitch, 2007; Bolger, DeLongis, Kessler, & Schilling, 1989; DeLongis, Folkman, & Lazarus, 1988; Trickey, Farhall, Wertheim, Hinch, & Ong, 2011). For example, DeLongis et al. (1988) used a revised version of the Daily Hassles and Uplifts Scale (Kanner, Coyne, Schaefer, & Lazarus, 1981) to investigate the relationship between daily hassles and mood in N = 75 non-depressed couples over a 6-month period. Results of the study indicated that daily hassles were associated with individuals' mood problems on the same, but not subsequent, days of their occurrence. Moreover, the extent of this association differed strongly across participants in that daily hassles were particularly predictive of low mood in participants who were characterised by low self-esteem and unsupportive social relationships.

Investigating interactive effects of individuals' cognitive vulnerability and daily hassles, Abela and Skitch (2007) followed a sample of N = 140 children at risk of depression (i.e. children who had a parent with a history of MDD) over a 1-year period. They reported that children with dysfunctional attitudes and low self-esteem reported a stronger worsening of mood following daily hassles than other children. Moreover, adopting an interpersonal perspective on the maintenance of depression, one study found that *interpersonal* daily hassles were associated with depression in a community sample of N = 128 adults (Trickey et al., 2011). Finally, a recent study in a non-clinical population reported that overgeneral memory (cf. p. 25) moderated the relationship between chronic daily hassles and depressive symptomatology (Anderson, Goddard, & Powell, 2010).

Although these studies were conducted within healthy populations, it follows that the hassle-mood link should be prominent in depressed individuals who are characterised by low self esteem, difficult interpersonal relationships and overgeneral memory. However, research has highlighted the degree of both concurrent and time-lagged covariation between daily hassles, recent major life events and depression (Pettit, Lewinsohn, Seeley, Roberts, & Yaroslavsky, 2010); and thus, the extent to which self-reports of low mood and daily hassles are confounded currently remains unclear.

Childhood maltreatment.

At the severe end of the spectrum of stressful life events, a multitude of studies have reported that childhood maltreatment (child sexual abuse [CSA] and/or physical abuse [CPA]) is associated with adult depression (for CSA and CPA in men and women, see: Fergusson, Boden, & Horwood, 2008; for female survivors of CSA, see: Kendler et al., 2000; MacMillan et al., 2001; Mullen, Walton, Romans-Clarkson, & Herbison, 1988; Neumann, Houskamp, Pollock, & Briere, 1996; for male survivors, see: Romano & De Luca, 2001; for CPA, see: Springer, Sheridan, Kuo, & Carnes, 2007) with some studies suggesting a 'dose-response' relationship between severity of

abuse and depression (Wise, Zierler, Krieger, & Harlow, 2001). Moreover, childhood maltreatment has been associated with unfavourable (i.e. recurrent or chronic) courses of MDD (Nanni, Uher, & Danese, 2012). While childhood maltreatment is often confounded with other environmental vulnerability factors, a recent meta-review on the effects of CSA (Maniglio, 2010) concluded that "across methodologies, samples and measures, survivors of child sexual abuse are significantly at risk of depression" (p. 637).

More recently, an interesting branch of research has begun to investigate interactive effects of childhood maltreatment and (1) stressful life events (Espejo et al., 2007; Horwitz, Widom, McLaughlin, & White, 2001; Kendler, Kuhn, & Prescott, 2004b; McLaughlin, Conron, Koenen, & Gilman, 2010) or (2) neuroticism (Kendler et al., 2004a) on adult depression. For example, using data from a National Epidemiological Survey (N = 34.635), McLaughlin et al. (2010) reported an increased 12-month prevalence of MDD and other disorders following stressful life events in individuals who had experienced childhood maltreatment compared to those who had not. Similarly, Kendler et al. (2004a) demonstrated in a large twin sample (N = 7500) that the impact of neuroticism on depression was greater at high vs. low levels of childhood maltreatment.

Overall, childhood maltreatment is associated with heightened vulnerability for MDD in later life which may be mediated by heightened stress-sensitization to other stressful life events. However, childhood maltreatment predicts a variety of psychiatric disorders (Fergusson et al., 2008; Neumann et al., 1996; Rind, Tromovitch, & Bauserman, 1998; Scott, Smith, & Ellis, 2010) and must hence be regarded as a non-specific risk factor for later psychopathology (Cutajar et al., 2010; Walsh, Fortier, & DiLillo, 2010).

Interim conclusion.

A multitude of risk factors have been found to predict the onset or course of depression. Amongst these, both external and intrapersonal variables have been found to increase the risk for developing MDD. Whilst recent major stressful life events have been robustly linked to subsequent first onset MDD, comparatively less is known about the role of minor stressors which are generally thought to contribute to the maintenance, but not onset of depression, particularly in their interplay with overgeneral memory. Similarly, childhood maltreatment and personality characteristics (in particular negative emotionality [in childhood] and neuroticism [in adulthood]) have been found to reliably predict the onset and course of MDD - both by themselves and in their interaction with stressful major life events. These risk factors appear to heighten individuals' risk for developing a range of psychiatric difficulties and, like all risk factors, are only facets within a complex array of biopsychosocial factors which may underlie the development of MDD.

Self-Perpetuating Processes in the Maintenance of Major Depressive Disorder

While research has identified a number of vulnerability factors that predispose individuals for MDD, relatively little is known about the mechanisms through which such influences translate into maintaining factors that increase the persistence of the disorder. Initial onsets of depression often occur in response to major life events, but symptoms seem to be increasingly maintained through

mechanisms that require little or no external input (Teasdale, 1988).

Psychological models suggest that such trajectories are characterised by trait-state interactions in which trait vulnerabilities lead to maladaptive cognitive-behavioural responses to current challenges. These responses then cause further entrenchment of these vulnerabilities and thus establish a self-perpetuating regulative system that keeps the disorder in place and becomes less and less dependent on external stressors (Abramson, Metalsky, & Alloy, 1989; Barnard & Teasdale, 1991; Beck, 1987). Whilst *intrapersonal* models have emphasised the role of cognitions and information processing biases in the maintenance of depression, *interpersonal* models have argued that depression has to be understood in relation to "readily observable interpersonal processes" (Joiner, Coyne, & Blalock, 1999, p. 7). The following sections will hence briefly review the most influential cognitive and interpersonal models of depression as well as empirical evidence for those aspects of these models that are relevant for the present study.

Cognitive models of depression.

At the time when MDD was introduced in the DSM-III (American Psychiatric Association, 1980), theoretical accounts of cognition in depression focussed mainly on three different models (Joormann, 2009): First, Seligman (1975) introduced the *helplessness model* which postulated that depressive episodes had their roots in individuals' perceived lack of control over externally occurring, negative events. This model was later refined by Abramson and colleagues (Abramson et al., 1989) towards the *helplessness/hopelessness model* which widened Seligman's observations to include hopelessness, i.e. some individuals' persistent expectations that positive, desired outcomes would not occur whilst aversive, undesired outcomes certainly would.

Second, albeit not providing a specific theory of depression, Bower (1981) argued that depressive vulnerability and cognitive biases could be understood using a framework of *associative networks*; i.e. hypothesised cognitive structures which link cognitive and emotional aspects of a depressive state and whose pathways are weakened and/or strengthened, depending on the frequency of their activation. According to this model, the activation of one element of a cognitive network leads to the partial activation (*priming*) of all associated elements which subsequently require less activation to be activated themselves, thereby accounting for the simultaneous occurrence of different information processing biases. Building on this information-processing perspective, other theorists such as Ingram (Ingram & Hollon, 1986; Ingram, 1984) and Teasdale (1988) have used the concept of associative networks, i.e. the idea of cognitively associated and progressively ingrained symptom-clusters, for their accounts of explaining depressions' onset, maintenance and course.

Third, Beck introduced a cognitive model of depression (Beck, Rush, Shaw, & Emery, 1979, 1987) which - due to its seminal character - will be reviewed more closely in the following sections.

Beck's cognitive model of depression.

Beck's cognitive model of depression (Beck et al., 1979, 1987) suggested that depression results from depressive *schemas* (i.e. dysfunctional core beliefs about the self) which are formed under the influence of adverse early life experiences (*cognitive vulnerability*). These schemas lie dormant, until being activated by stressful life events, leading to a variety of negative biases in both perception and thought patterns which then induce a vicious cycle (between schema activation [cognitive vulnerability] and perceptual biases [*cognitive reactivity*]) that eventually results in depressive disorder (Ingram, Miranda, & Segal, 2006).

Based on this theoretical account of the development and maintenance of depression, Beck et al. (1979) developed a cognitive therapy (CT) which aims to facilitate change in the function, content and structure of underlying depressive schemas as well as in overlying constructs which may reflect the schemas such as negative automatic thoughts, or dysfunctional attitudes by means of both cognitive and behavioural interventions.

Empirical evidence.

Many components of cognitive models of depression have attracted considerable empirical support (Clark & Beck, 1999; Garratt, Ingram, Rand, & Sawalani, 2007). Both the descriptive aspects of depression (such as the occurrence of automatic thoughts which reveal the negative views of the self, the world and the future which accompany depression) (Haaga, Dyck, & Ernst, 1991) and the suggested activation of negative cognitive schemas under stress have been empirically supported (Scher et al., 2005; Segal et al., 2006). Furthermore, cognitive therapy (Beck et al., 1979) has been shown to be an effective treatment of the disorder, being superior to no treatment and placebo medication control conditions and as effective as antidepressant medication in the short term (DeRubeis, Siegle, & Hollon, 2008). Moreover, CT has also been shown to reduce the risk of future episodes of depression (DeRubeis et al., 2008; Hollon, Thase, & Markowitz, 2002; Hollon, 2006; Strunk & DeRubeis, 2001). The following paragraph will briefly review empirical evidence for one specific aspect of cognitive vulnerability which is relevant for the present study.

Dysfunctional attitudes.

Many empirical studies have reported associations between dysfunctional attitudes (DAs) and depression in both clinical and non-clinical populations (Abramson et al., 2002; Alloy, Abramson, & Francis, 1999; Alloy, Abramson, Murray, Whitehouse, & Hogan, 1997; Ingram, Miranda, & Segal, 1998). However, it has been unclear whether DAs are a cause or consequence of depression. Hence, remission design studies, which investigate DAs in never-before vs. previously depressed individuals in order to establish the temporal link between depressive cognitions and depression, have reported mixed results (Joormann, 2009) with some reviews concluding amelioration of depressive cognitions in remission (Haaga et al., 1991) and others reporting cognitive reactivity, i.e. cognitions to lie dormant but to emerge following negative mood inductions (Ingram et al., 1998; Just, Abramson, & Alloy, 2001; Persons & Miranda, 1992; Scher et al., 2005).

Few longitudinal studies have investigated the effect of negative cognitive style on depression. One study (Alloy, Abramson, Walshaw, & Neeren, 2006) compared college students with and without negative cognitive styles and found that the former were approximately 7 times more likely to experience first onset depression over a 2.5-year-follow-up period. Similarly, DAs have been found to predict relapse in recurrent depression even in the absence of negative mood induction (Jarrett et al., 2012). By contrast, Otto et al. (2007) followed a community-based sample of *N* = 750 women over a period of three years and reported that DAs at baseline did not predict subsequent depression, once 'history of past depression' was controlled.

Investigating moderating effects of DAs, several studies have shown that DAs may interact with stressful life events in predicting the onset of depression (Hankin et al., 2004; Joiner, Metalsky, Lew, & Klocek, 1999; Olinger et al., 1987; Scher et al., 2005; Wise & Barnes, 1986). For example, Klocek et al. (1997) investigated a sample of *N* = 196 university undergraduates over a 15-week period and found that participants' DAs interacted with experienced negative life events in predicting symptoms of depressive dysphoria. By contrast, surprisingly few studies address mediating effects of DAs. For example, Burns and Spangler (2001) reported that DAs did not mediate the effect of depression on anxiety in a large clinical sample (*N* = 521) treated with Cognitive Behavioural Therapy (CBT). Instead, results pointed to a model wherein a third (unknown) variable accounted for changes in DAs, depression and treatment outcome, suggesting a correlational, albeit non-causal, role for DAs in the maintenance of MDD.

Last, it has been suggested that DAs may contribute to the elicitation of interpersonal stress. Adopting an interpersonal focus, Meuwly et al. (2012) investigated *N* = 63 couples with one clinically depressed partner and found that the depressed partners' DAs mediated the relationship between the non-depressed partners' levels of expressed emotion and the depressed partners' depression.

Overall, although some research has highlighted the role of DAs in maintaining depression, it is currently unclear which underlying cognitive processes might mediate this effect.

Interpersonal models of depression.

In addition to cognitive conceptualizations of depression, it has long been suggested that maladaptive interpersonal behaviours are an important contributor to the maintenance of MDD in that depressed patients often show interpersonal behaviours that are likely to provoke unwanted responses from others and may thus generate stressful interactions[3] (Coyne, 1976a, 1976b; Hammen, 1992, 2006). For a recent review of interpersonal processes in depression, see Hames,

[3] For example, Coyne's interactional theory of depression (Coyne, 1976a, 1976b) suggests that depression is maintained by a vicious cycle wherein (1) mildly depressed individuals tend to seek reassurance from other people to ameliorate feelings of guilt and/or worthlessness, (2) other people initially provide this reassurance, (3) the depressed individuals, however, doubt their genuineness and continue to seek reassurance, until (d) the other people would become irritated and reject them, hence reinforcing the initial feelings of guilt and worthlessness. Coyne's model has attracted substantial empirical attention. Its key postulates such as reassurance seeking and the 'contagion' of depressed mood/symptoms via interpersonal mechanisms have been supported in a considerable number of studies (Joiner & Katz, 1999; Starr & Davila, 2008). In addition, other studies have focused on constructs which potentially underlie reassurance seeking such as dependency schemas (Schmidt, Schmidt, & Young, 1999) or social milieu (Zuroff, Mongrain, & Santor, 2004).

Hagan and Joiner (2013). An important framework for understanding interpersonal processes in the maintenance of depression is that of *interpersonal stress generation* (ISG) - a phenomenon whereby depressed individuals report higher rates of stressful events which - in part - have their origin in their own characteristics and behaviours. Herein, depressed individuals may either behave in a way likely to elicit negative reactions from others or actively create stressful circumstances (Chun, Cronkite, & Moos, 2004; Cui & Vaillant, 1997; Daley et al., 1997; Hammen, 1991b). Specifically, Hammen's model of ISG postulates that depressed individuals experience more *dependent* negative life events (i.e. negative life events that are influenced by their own behaviour) than non-depressed individuals.

Indeed, research has shown that depressed patients are more likely to be involved in stressful interpersonal situations and that this increased interpersonal stress arises to a significant degree as a result of (1) the effects of depressive thinking and (2) how patients relate to significant others and their wider social environment (Hammen, 2005; Liu & Alloy, 2010). Moreover, currently established treatments for depression which aim to increase interpersonal functioning have been proven effective (Cuijpers et al., 2011; Hollon et al., 2002), and improvements in depressive symptoms have been found to predict improvement in interpersonal functioning (Vittengl, Clark, & Jarrett, 2004).

Although ISG has been characterised as a maintaining factor for depression, it is relatively unclear whether depressive symptomatology or underlying traits contribute to ISG (Hammen, 1992a). However, some research findings have begun to clarify this question. For example, ISG has been found to be particularly pronounced in individuals who have suffered from distal risk factors such as childhood maltreatment (Harkness, Lumley, & Truss, 2008; Liu, Choi, Boland, Mastin, & Alloy, 2012) or who are high in neuroticism (Kendler, Gardner, & Prescott, 2003; Kendler et al., 1999; Poulton & Andrews, 1992). In addition, research has begun to establish a link between DAs and problematic interpersonal behaviours in healthy individuals (Whisman & Friedman, 1998).

These findings suggest a possible pathway wherein the effects of vulnerability factors (i.e. childhood maltreatment, neuroticism, or dysfunctional attitudes) on depression may be partly explained through their impact on ISG. However, because childhood maltreatment and neuroticism cannot be changed directly, it is important to understand how these risk factors may (1) translate into psychological traits that underlie interpersonal behaviour, (2) lead into trait-state interactions that perpetuate depressive symptoms and (3) become indirectly amenable to clinical interventions.

Linking Cognitive and Interpersonal Models of Depression - Level of Construal

In linking cognitive and interpersonal models of depression, it is of pivotal interest how vulnerability factors for depression contribute to ISG. A central psychological factor in this context may be the level at which depressed individuals construe past and current experiences. In theoretical accounts, *construal level theory* (CLT; Rim, Uleman, & Trope, 2009) postulates that psychological events are construed on a high or low level. High-level construals comprise information which is encoded, processed and retrieved in an abstract, decontextualized and general

way. By contrast, low-level construals comprise concrete, contextualised and specific information. Important indicators of individuals' levels of construal are (1) the specificity with which they remember past autobiographical events and, relatedly, (2) their propensity to spontaneously ascribe personality traits to other people.

Overgeneral memory.

Cognitive models of depression postulate cognitive biases across all information processing domains, including memory (Mathews & MacLeod, 2005). Previous research has shown that depressed patients show characteristic aberrations in the level of abstraction at which they construe past experiences (Moore, Watts, & Williams, 1988; Williams & Broadbent, 1986; Williams et al., 2007). When asked to remember specific events from their life (e.g., "When I met my friend last Tuesday"), they often fail and instead come up with generic descriptions that summarize whole classes of events (e.g. "Whenever I went to see my friends in Germany"); a phenomenon which has been labelled overgeneral memory (OGM). OGM has been found to affect the course of MDD and has been associated with delayed recovery in some studies (Brittlebank, Scott, Williams, & Ferrier, 1993; Peeters, Wessel, Merckelbach, & Boon-Vermeeren, 2002; for a meta-analysis, see Sumner et al. [2011]), but not others (Brewin, Reynolds, & Tata, 1999).

Importantly, is has been demonstrated that (1) OGM remains stable after episodes of MDD (Mackinger, Pachinger, Leibetseder, & Fartacek, 2000), (2) OGM is associated with impaired social problem solving skills (De Jong-Meyer & Barnhofer, 2002; Goddard, Dritschel, & Burton, 1996; Raes et al., 2005; Sutherland & Bryant, 2008; Williams, Barnhofer, Crane, & Beck, 2005) and, (3) increased memory specificity is associated with improved social problem solving skills (Eade et al., 2006). Moreover, it has been suggested that depressed patients' tendencies to construe autobiographical information on an overly general level may arise as an attempt to regulate negative affect associated with the retrieval of memories in individuals with a history of traumatic experiences or increased temperamental sensitivity to negative affect (Williams, 1996). In line with these assumptions, OGM has also been found to be particularly characteristic of depressed patients with histories of childhood adversity (Hermans et al., 2004; Kuyken & Brewin, 1995; Moore & Zoellner, 2007) and higher levels of neuroticism (Scott, Williams, Brittlebank, & Ferrier, 1995).

Overall, these findings indicate that a general level of construal may adversely impact on social problem solving skills and thus be relevant for the experience or elicitation of daily hassles in general (cf. Anderson et al., 2010) or interpersonal daily hassles in particular (**denotation**: *[interpersonal] daily hassles*). However, *how* might an *intra*personal high level of construal contribute to the generation of *inter*personal stress? One possible way is through its influence on social perception processes.

Spontaneous trait inferences.

Cognitive theories of depression suggest that DAs are indicative of maladaptive schemas that lead individuals to interpret internal and external events in a biased fashion. In particular, two types of DAs have been shown to be of relevance in depression: (1) attitudes that lead people to connect their self-worth with approval by others ("*need for approval*"; NFA) and (2) attitudes that connect self-worth with performance and achievements ("*performance evaluation*"; PE) (Beck, 1987; Blatt, D'Afflitti, & Quinlan, 1976; Robins et al., 1994). For example, DAs regarding NFA have been shown to predict higher levels of overgeneral memory in previously depressed patients compared to healthy controls (Barnhofer, Crane, Spinhoven, & Williams, 2007).

Depressed patients (DPs) frequently display maladaptive interpersonal behaviours and are often perceived as hostile or submissive (Fava et al., 1997; Horowitz & Vitkus, 1986; Overall & Zisook, 1980). It is conceivable that these behaviours stem from DPs' endorsement of DAs which may contribute to the generation of interpersonal stress.

However, *how* may a general level of construal link DAs and [interpersonal] daily hassles? Evidence from research in healthy samples suggests that level of construal can have significant effects on how individuals perceive other people and their actions. For example, theories of person perception suggest that interpersonal behaviour is not only guided by conscious appraisals but also by non-conscious appraisals labelled *spontaneous trait inferences* (STIs; Uleman, Saribay, & Gonzalez, 2008; Uleman, 1999). That is, individuals often automatically infer information about other peoples' traits from single occurrences of particular behaviours (e.g. If Bernadette is described as having resolved the puzzle within 5 minutes, people tend to infer that she is *clever*). STIs "are [unconscious] snap judgements that spring to mind unbidden [and] can introduce biases that can go unnoticed and uncorrected" (Uleman, Hon, Roman, & Moskowitz, 1996, p. 377).

STIs are more likely to occur in domains in which individuals harbour strong beliefs or schemas, and the more individuals tend to show STIs the more stereotypical their interpersonal behaviour is likely to be. For example, research on anger has shown that aggressive individuals tend to make hostile STIs from ambiguous behavioural descriptions (Zelli, Cervone, & Huesmann, 1996). Importantly, research drawing on CLT has shown that tendencies towards STI formation increase when individuals are induced to process information in general rather than specific ways (Rim et al., 2009). Because of depressed individuals' tendency to process information in an overgeneral way, and because they may harbour strong NFA or PE-related DAs, depressed individuals may be particularly prone to make STIs; i.e. to ascribe conceptually linked personality traits to other people. Such stereotypical judgements may then contribute to the elicitation of [interpersonal] daily hassles and thereby maintain depressive symptomatology.

The present study investigates spontaneous trait inferences (STIs; i.e. the tendency to spontaneously ascribe personality traits to other people) as a potential mechanism which may underlie the generation of [interpersonal] daily hassles. The study will then investigate STIs in relation to other, more established vulnerability factors for depression such as overgeneral memory,

childhood maltreatment, neuroticism or dysfunctional attitudes. A greater understanding of the relationship between STIs and interpersonal difficulties may further contribute to the development of effective interventions positioned at the interface of intra and interpersonal processes.

Conclusion

A variety of vulnerability factors have been identified to contribute to the onset or maintenance of depression, including childhood maltreatment, neuroticism, or dysfunctional attitudes. Moreover, a considerable body of research has shown that depression undermines interpersonal functioning and thereby increases stress which may then contribute to the maintenance of the disorder. However, little is known about possible cognitive mechanisms which may underlie this [interpersonal] stress generation. It has been suggested that overgeneral information processing may negatively affect interpersonal functioning through its impact on depressed individuals' memory and social perception processes. The present study aims to investigate automatic person perception in depression by demonstrating spontaneous trait inferences (STIs; i.e. a tendency to spontaneously ascribe personality traits to others) in depressed individuals. Once established, it will be investigated whether these STIs contribute to the generation of [interpersonal] daily hassles or, more broadly, the maintenance of depression. Widening the perspective, STIs will then be examined in their relation to other, more established vulnerability factors which are directly or indirectly associated with a general level of construal, such as overgeneral memory (OGM), childhood maltreatment, neuroticism and dysfunctional attitudes. Finally, exploratory analyses will investigate whether STIs or OGM may function as cognitive 'interfaces' between (1) vulnerability factors and [interpersonal] daily hassles or depression severity, or (2) depression severity and [interpersonal] daily hassles.

Objectives and Hypotheses

The present study set out to investigate the role of spontaneous trait inferences (STIs) in the generation of [interpersonal] daily stress or, more broadly, the maintenance of depression. The study had three aims: First, to demonstrate STIs in individuals with MDD. Second, to investigate the role of STIs in predicting [interpersonal] daily hassles or, more broadly, depression severity. Third, to examine correlations between spontaneous trait inferences and other - more established - vulnerability factors which are directly or indirectly associated with a general level of construal, such as overgeneral memory (OGM), childhood maltreatment, neuroticism and dysfunctional attitudes. Exploratory mediational analyses further investigated the roles of STIs and OGM as cognitive 'interfaces' between (1) [interpersonal] daily hassles or depression severity as a function of vulnerability factors, or (2) [interpersonal] daily hassles as a function of depression severity.

We hypothesized that (1) *depressed patients will show higher levels of spontaneous trait inferences, overgeneral memory, childhood maltreatment, neuroticism, dysfunctional attitudes and [interpersonal] daily hassles than healthy controls*; (2) *spontaneous trait inferences will positively correlate with [interpersonal] daily hassles and depression severity*; and (3) *spontaneous trait inferences will positively correlate with overgeneral memory, childhood maltreatment, neuroticism and dysfunctional attitudes*.

Method

Participants

A total of 40 participants were included in the analysis.

Group one comprised 20 patients (60% of whom were female) who met ICD-10 criteria for MDD. *Inclusion criteria* were (1) a current diagnosis of MDD, (2) self-reported severity of current symptoms on a clinical level as indicated by Beck Depression Inventory-II (BDI-II) scores above 19, (3) age 25 to 65, (4) fluency in spoken and written English and (5) not more than two sessions of current psychological treatment (whilst previous courses of treatment were recorded). *Exclusion criteria* were self-reported (1) history of or current psychosis or rapid-cycling bipolar disorder and (2) current eating disorder, (3) obsessive compulsive disorder, (4) self-harm, or (5) substance abuse / dependence. Patients who were taking antidepressants were allowed into the study provided that the medication had not been changed in the last four weeks before the study commenced. Current medication was recorded.

Group two comprised 20 healthy controls that (1) were matched to group one for age and gender, (2) were not currently seeking and/or receiving any form of psychological treatment for a mental health problem and (3) did not meet diagnostic criteria for MDD.

Participants were recruited via local *Improving Access to Psychological Therapies services* (depressed patients) and the *MindSearch Database* at the Institute of Psychiatry (healthy controls). The study was approved by the local ethics committee. All participants provided written informed consent and were reimbursed with £20 for their time and travel expenses. The two groups were comparable in terms of age, years of education, gender and ethnicity. See Table 1 for an overview of sociodemographic sample characteristics.

Table 1. Sample characteristics of depressed patients and healthy controls.

	DPs (n = 20)	HCs (n = 20)		
	M (*SD*)	*M* (*SD*)	Group effect	Cohen's *d* Cramér's φ
Age	36.80 (11.30)	36.45 (11.08)	$t(38) = .10$	.03
Age of onset	17.80 (8.47)	N/A		
Past depressive episodes[†]	8.79 (8.24)	N/A		
Years of education	16.70 (6.12)	17.35 (5.03)	$t(38) = -.37$	-.12
Gender			χ^2 (1, N = 40) = .00	.00
Male	8	8		
Female	12	12		
Ethnicity			χ^2 (1, N = 40) = 1.91	.02
Caucasian	12	16		
Non-caucasian	8	4		

Notes. The group effect was based on independent samples *t* or Pearson's chi-square tests. It indicates the presence of a difference between groups on the respective variable. DPs = Depressed Patients; HCs = Healthy Controls.

[†] Based on n = 14 DPs (6 patients reported 'too many [past episodes] to remember').

Behavioural Measures

Sociodemographic information.

Sociodemographic data (including information about current medication and past psychological treatments) were obtained using a general information questionnaire (GIQ).

Diagnosis.

Current and past episodes of depression as well as co-morbid disorders, including personality disorders were assessed using screenings for Axis I and a subset of Axis II disorders (Avoidant, Dependent, Narcissistic and Borderline Personality Disorders) of the *Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders - 4th Edition* (DSM-IV) (SCID axes I and II). The MDD module of the SCID-I was used to ascertain diagnostic status of MDD.

Depression and anxiety.

Severity of participants' current symptoms of depression and anxiety were assessed by self-reports on the *Beck Depression Inventory-II* (BDI-II; Beck, Steer, & Brown, 1996), the *Major Depression Inventory* (MDI; Bech, Rasmussen, Olsen, Noerholm, & Abildgaard, 2001; Olsen, Jensen, Noerholm, Martiny, & Bech, 2003) and the *Beck Anxiety Inventory* (BAI; Beck & Steer, 1990).

The BDI-II is a 21-item self-report inventory measuring characteristic attitudes and symptoms of depression 'over the past two weeks' on a 4-point scale from 0 to 3 with higher scores indicating higher degrees of depression. It has good psychometric properties and has been shown to be a reliable and valid measure (Groth-Marnat, 2009; Richter, Werner, Heerlein, Kraus, & Sauer, 1998). Cut-off scores are 0-9 (normal), 10-18 (mild-moderate), 19-29 (moderate-severe) and ≥ 30 (severe). In the present sample, the BDI-II had good internal consistency (Cronbach's $\alpha = 0.98$).

The MDI is a 12-item measure assessing 10 common symptoms of depression on a 6-point scale from 0 (*at no time*) to 5 (*all the time*). The scale is commonly used to assess depression severity (cut-off scores: 0-19 [normal], 20-24 [mild], 25-29 [moderate], ≥ 30 [severe]), or establish a diagnosis of MDD according to the *International Classification of Diseases-10th Edition* (ICD-10)[4]. In the present sample, the MDI had good internal consistency (Cronbach's $\alpha = 0.97$).

The BAI is a 21-item self-report measure with good psychometric properties (Osman, Kopper, Barrios, Osman, & Wade, 1998) assessing common somatic and cognitive symptoms of anxiety 'over the past month' on a 4-point scale from 0 (*not at all*) to 3 (*severely [it bothered me a lot]*). Cut-off scores are 0-7 (minimal level of anxiety), 8-15 (mild), 16-25 (moderate) and ≥ 26 (severe). In the present sample, the BAI had good internal consistency (Cronbach's $\alpha = 0.94$).

[4] *Mild depression*: A score of 4 or 5 in two of the first three items. Plus a score of at least 3 on two or three of the last seven items. *Moderate depression*: A score of 4 or 5 in two or three of the first three items. Plus a score of at least 3 on four of the last seven items. *Severe depression*: A score of 4 or 5 in all of the first three items. Plus a score of at least 3 on five or more of the last seven items. *Major depression*: The number of items is reduced to nine, as Item 4 is part of Item 5. Include whichever of the two items has the highest score (item 4 or 5). A score on at least five items is required, to be scored as follows: the score on the first three items must be at least 4, and on the other items at least 3. Either Item 1 or 2 must have a score of 4 or 5.

Distal vulnerability factors.

Childhood maltreatment.

Childhood maltreatment was assessed using the *Childhood Trauma Questionnaire - Short Form* (CTQ-SF; Bernstein et al., 1994). The CTQ-SF is a 28-item self-report inventory with good psychometric properties (Bernstein & Fink, 1998; Bernstein et al., 2003). It measures five types of maltreatment - emotional, physical, or sexual abuse, and emotional or physical neglect 'during childhood' on a 5-point scale from 1 (*never true*) to 5 (*very often true*). Seven items are reversely coded (2, 5, 7, 13, 19, 26, 28) and higher scores indicate higher levels of childhood maltreatment. The measure further includes a 3-item 'Minimization/Denial' subscale for detecting false-negative trauma reports which was excluded in all analyses. In the present sample, the CTQ-SF had good internal consistency (Cronbach's $\alpha = 0.96$).

Neuroticism / extraversion.

Temperamental risk for depression was assessed using the *Revised Eysenck Personality Questionnaire - Short Form* (EPQR-S; Eysenck, Eysenck, & Barrett, 1985). The EPQR-S is a 48-item measure with satisfactory psychometric properties (Eysenck et al., 1985; Francis, Brown, & Philipchalk, 1992) assessing neuroticism, extraversion and psychoticism on three 12-item subscales. The remaining questions comprise a 12-item liescale. Answer alternatives are 1 (*yes*) or 0 (*no*). Several items are reversely coded (Extraversion: 27, 41; Psychoticism: 2, 6 18, 26, 28, 35, 43; Liescale: 8, 12, 20, 24, 29, 33, 37, 40, 47) and higher scores indicate higher expression of the respective personality dimension. In the present sample, the personality subscales of interest had good internal consistency (Extraversion and Neuroticism: Cronbach's $\alpha = .90$).

Dysfunctional attitudes.

Dysfunctional attitudes were measured using the *Dysfunctional Attitudes Scale - Form A* (DAS-A; Weissman, 1979). The DAS-A is a 40-item self-report inventory designed to assess the endorsement of dysfunctional beliefs that guide individuals' self-evaluations. The scale has satisfactory psychometric properties (Cane, Olinger, Gotlib, & Kuiper, 1986; De Graaf, Roelofs, & Huibers, 2009; Oliver & Baumgart, 1985). Items are answered on a 7-point scale from 1 (*totally disagree*) to 7 (*totally agree*). Ten items are reversely coded (2, 6, 12, 17, 24, 29, 30, 35, 37 and 40) and higher scores indicate higher levels of dysfunctional attitudes. In the present sample, the DAS-A had good internal consistency (Cronbach's $\alpha = .96$).

[Interpersonal] daily hassles.

Daily stress in general and interpersonal stress in particular ('*[interpersonal] daily stress*') was assessed by asking participants to complete a brief daily survey over a period of one week assessing *minor stressful life events [daily hassles]*. The questionnaire consisted of a daily mood rating (1 = *very good* to 5 = *very low*) as well as a subset of items from the 'hassles' subscale of the *Daily Hassles and Uplifts Scale* (DHUS; Kanner et al., 1981) which were *a priori* categorised as being either interpersonal or achievement-related[5]. Participants indicated (1) the frequency of each

[5] See Appendix A8 (p. 113) for items.

hassle, (2) the felt severity of each event (1 = *not at all stressful* to 5 = *very stressful*) and (3) the extent to which they felt each life event had depended on their own behaviour (*subjective dependency ratings*: 1 = *not at all dependent* to 5 = *totally dependent*). Events with a subjective dependence score of ≥ 3 were classified as dependent daily hassles. Because the study's focus lay on participants' experience of daily stress in general and interpersonal stress in particular, four outcome indices were computed: total daily hassles, interpersonal daily hassles, dependent daily hassles and dependent interpersonal daily hassles.

Experimental Procedures

Overgeneral memory.

Specificity of autobiographical memory was assessed using the *Autobiographical Memory Task* (AMT; Williams & Broadbent, 1986). In this task, participants were presented with 18 cue words (6 positive, 6 negative, 6 neutral [Brittlebank, Scott, Williams, & Ferrier, 1993]) and asked to describe a specific event from their lives that the word reminded them of, which (1) referred to a particular day and place and (2) happened more than a week ago. Participants were instructed to retrieve a different memory for each cue word and were given 30 seconds per trial[6]. During the task, participants' first responses were scored and the experimenter prompted only for clarification purposes. Prior to the task, participants completed up to six practice trials until at least two specific memories had been retrieved. All responses were audio-recorded and coded for specificity.

Spontaneous trait inferences.

STIs were assessed using an adaptation of the *False Recognition Paradigm* (FRP) by Todorov and Uleman (2002), specifically tailored towards a depressed population. In the encoding phase of this paradigm, participants were asked to memorise displays in which pictures of faces were paired with behavioural descriptions that either contained explicit trait descriptions or, critically, *implied* traits but did not mention them explicitly. Both general and person-specific STIs were measured, i.e. tendencies to ascribe NFA and PE-related traits to (previously linked) faces of individuals. See Figure 1 (p. 36) for a schematic illustration of the paradigm and an overview of the measured effects.

[6] See Appendix C2 (p. 128) for instructions.

In the recognition phase of the task, participants were shown displays in which the same pictures of faces were paired with trait words. Participants had to indicate whether the presented trait word was part of the behavioural description of that person in the encoding phase or not. For example, participants would be presented with a face and the behavioural description 'I called the secretary until UI was put through to the head of the company'. Later tendencies to falsely indicate that this person explicitly described him or herself as 'determined' would provide indirect evidence of a STI.

Experimental stimuli.

Facial stimuli.

A random subsample of 96 neutral faces (50% female) was drawn from the 76 available male and 59 available female faces on the AR Face Database (Martinez & Benavente, 1998).

Behavioural descriptions.

Twenty-four target sentences were constructed which contained an *implicit trait description* (*target sentences [implicit-trait]*, e.g. 'I called the secretary until I was put through to the head of the company'). Implicit traits were derived from a previous investigation on traits reflecting 'Need for Approval' and 'Performance Evaluation' in individuals with depression (Barnhofer et al., 2007)[7]. These constructs were originally identified using factor-analytic approaches for the DAS-A (Beck, Brown, Steer, & Weissman, 1991; Cane et al., 1986). 'Need for Approval' refers to attitudes relating to self-worth and social success, e.g. 'My value as a person depends greatly on what others think of me'. 'Performance Evaluation' refers to contingencies of self-worth and achievement with items such as 'If I do not do as well as other people, it means I am an inferior human being'.

In addition, 24 control sentences were constructed, 20 of which each contained an *explicit trait description* derived from Anderson's list of personality trait words (Anderson, 1968) (*control sentences [explicit-trait]*, e.g. 'I was so impolite that I did not thank my host for being invited to dinner'). The selected trait words were unambiguous in valence and unrelated to NFA or PE. To increase task credibility, the remaining 4 sentences explicitly mentioned traits which were implied in the target sentences (*control sentences [explicit-implicit trait]*, e.g. 'I was affectionate; I gently stroked my partner's cheek')[8]. Participants' responses to explicit and explicit-implicit trait sentences constituted control (i.e. memory) errors as applicable.

All sentences were balanced for 'valence' (positive vs. negative); while the target and explicit-implicit trait sentences were additionally balanced for 'trait type' (NFA vs. PE).

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[7] Sentences were constructed and tested in a series of pilot studies to ensure that behavioural descriptions did indeed connote the implied trait. Here, participants were asked to rate sets of sentences for whether a set of outlined target adjectives applied and, if so, to what extent ("a little", "somewhat", or "very much"). Sentences were selected as target sentences if ≥ 50% of participants rated the respectively implied target adjectives as applying "somewhat" or "very much" (Pretest 1: *N*=22 [Target *n* = 11]; Pretest 2: *N*=18 [Target *n* = 9]; Pretest 3: *N*=17 [Target *n* = 9]; Pretest 4: *N*=15 [Target *n* = 8]).

[8] See Appendix C1 (p. 126) for sentences.

Stimulus lists.

Two stimulus lists were created which counterbalanced gender in both the encoding and recognition phases *between* participants to ensure that specific traits were not systematically associated with a particular gender. Moreover, explicit-implicit traits varied across lists.

For each list, faces were randomly allocated to the behavioural descriptions (in line with gender restrictions) and varied across lists.

During both the encoding and recognition phases of the task, stimuli were presented in a random order for each participant.

Encoding phase.

During the encoding phase, participants studied *48 face-sentence pairs* for a later memory test[9]. These pairs included all *24 target sentences* and *24 control sentences*. Face-sentence pairs were presented for 7500-ms with a 1000-ms interstimulus interval.

Recognition phase.

During the recognition phase, participants indicated whether a pictured individual had previously described him or herself using a presented trait term (1 = yes; 0 = no)[10].

Here, both NFA/PE-related implicit and explicit-trait descriptions were presented twice: once with the previously paired face and once with a face pseudo-randomly[11] selected from those that had been previously paired with a different sentence. This allowed determining whether the tendency to spontaneously infer traits was specifically bound to previously presented faces (i.e. individuals) (Todorov & Uleman, 2002).

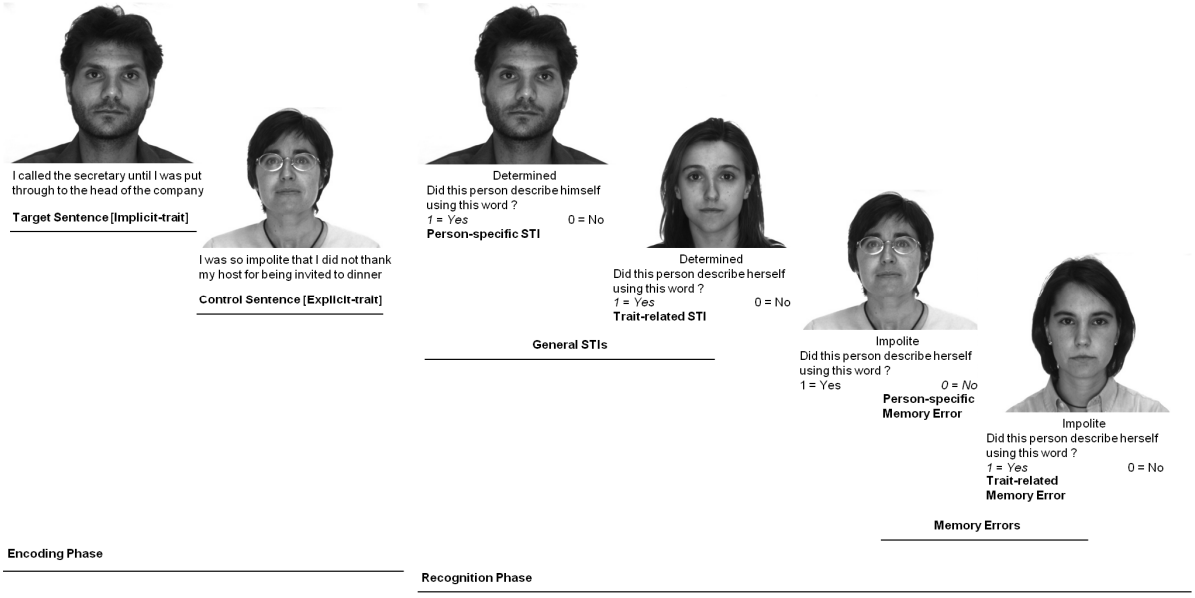
Face-trait pairs remained on screen until participants responded. There was a 500-ms interval between recognition trials. The paradigm was programmed using Visual Basic: Microsoft Visual Studio 2012 and presented on a 19-inches standard computer screen. The temperature at testing was set to 22℃.

[9] Instructions were adapted from Wilkowski and Robinson (2010): *In this study, we are investigating people's memory for social events. For this, you will see a series of pictures. Each picture will show a person who tells you about a behaviour. Your task is to study these person-behaviour pairs for a later memory test. It is important that you pay attention to both the persons and to what they are saying. You will have 7.5 seconds to study each person-behaviour pair. Press any key to begin.*

[10] *Now we will look at your memory for what you have just seen. Again, you will see a series of people. Each person will be shown with a word. Your task is to remember whether each person previously described him/herself using that word. If the person described him/herself using that word, press the "1" button at the top left of the keyboard. If the person did not describe him/herself using that word, press the "0" button at the top right of the keyboard. The task is easiest to complete placing your left index finger on the "1" key at the top left of the keyboard , and your right index finger on the "0" key at the top right of your keyboard. Press either key to begin.*

[11] Fifty percent of trait descriptions and control traits were paired with control faces of the same gender as the previously paired faces; 50% with control faces of the opposite gender.

Panel 1: Schematic illustration of the False Memory Paradigm.



Panel 2: Overview of measured effects.

Encoding phase	Implicit trait description				Explicit trait description	
Valence	Positive		Negative		Positive	Negative
Trait type	NFA	PE	NFA	PE		
Recognition phase	Previous face		Control face		Previous face	Control face
'Error' answers	Yes		Yes		No	Yes
Measured effects	1				2	
	General STIs				Memory Errors	
	1.1		1.2		2.1	2.2
	Person-specific		Trait-related		Person-specific	Trait-related

Figure 1. False Recognition Paradigm: Schematic illustration and overview of measured effects.

NFA = Need for Approval; PE = Performance Evaluation; STIs = Spontaneous Trait Inferences

Design

All participants completed baseline assessments of spontaneous trait inferences and overgeneral memory. In addition, depression severity, anxiety, childhood maltreatment, personality and dysfunctional attitudes were assessed at baseline. Following baseline assessments, participants recorded their mood and both interpersonal and achievement-related hassles daily over a follow-up period of one week. Levels of [interpersonal] daily hassles and hypothesised underlying factors in DPs and HCs were compared in a quasi-experimental two group design. Relations between factors of interest and indirect (i.e. mediating) effects were tested using a regressional framework within DPs and across participants.

Procedure and methods.

Responsible clinicians obtained permission from their patients to be contacted for research purposes. Those patients who consented to be contacted and who were interested to participate in the research were then screened on the telephone for main inclusion and exclusion criteria, including administration of the MDI. Subsequently, eligible participants were sent a pack including the information sheet, consent forms and questionnaires, and an appointment for the research session was scheduled. Here, participants (1) gave written informed consent, (2) completed the (a) MDD module of the SCID-I interview, (b) AMT, (c) FRP, (d) CTQ-SF and (3) were introduced to the daily survey and asked to complete the questionnaire each evening over the following week. Participants were then handed the daily questionnaires as well as a pre-paid envelope and were reimbursed with £20. Starting the following day, participants received a daily text message at 6:00 pm to remind them to fill in the daily questionnaire[12]. Upon completion of data collection, participants were called and debriefed about the study. See Figure 2 (p. 38) for an overview of procedures.

Power calculation.

Power was estimated based on an experimental study which demonstrated that a high vs. low level of construal (comparable to higher levels of overgeneral memory) predicted the occurrence of STIs in healthy individuals (Rim et al., 2009) and which reported an effect size of 1.34. A sample size of 10 in each group would have had 80% power to detect such an effect size using a two group *t*-test with a 0.05 two-sided significance level. Because the present study was the first to investigate STIs in DPs vs. HCs, sample size was set to 20 participants per group (98% power).

Data analysis.

All analyses were computed using the Statistical Package for the Social Sciences (SPSS 20, SPSS Inc., Chicago, IL, USA).

[12] *"This is a kind reminder to please fill in the daily questionnaire for the study 'Low Mood and Everyday Interactions with Other People'. Thank you!"* using the scheduled text messaging service TextAnywhere Ltd (http://www.textanywhere.net).

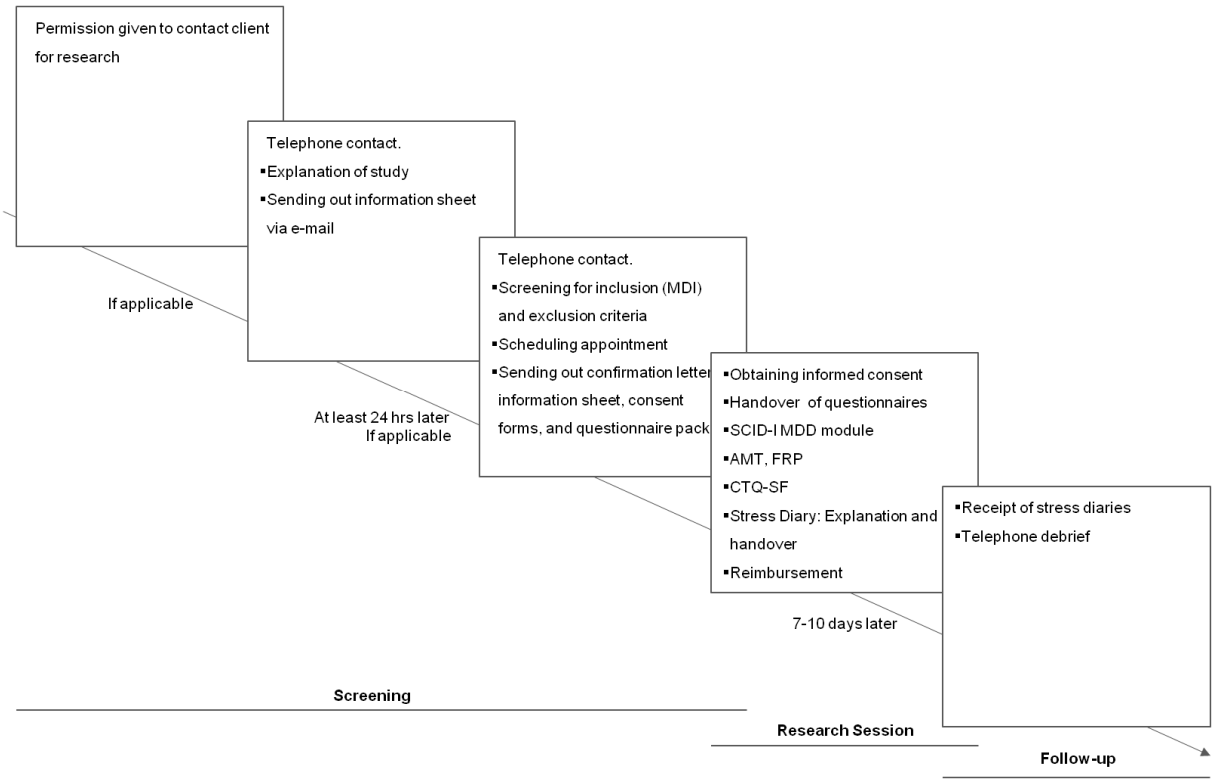


Figure 2. Overview of procedures.

Note that the SCID-I MDD module was only administered to Depressed Patients.

AMT = Autobiographical Memory Task; CTQ-SF = Childhood Trauma Questionnaire - Short Form; FRP = False Recognition Paradigm; MDD = Major Depressive Disorder; MDI = Major Depression Inventory; SCID-I = Structured Clinical Interview for DSM-IV - Axis I Disorders

Mediation analysis.

While the main focus of the study lay on between-group differences in STIs and the investigation of relations between STIs and other vulnerability factors, potential mediational pathways were also explored.

In a simple mediation analysis, the relationship between an independent Variable X and a dependent variable Y is thought to be caused by one mediator (i.e. intervening variable) M. Following Preacher and Hayes's (2004) and others' denotations, the relationship between the predictor X and the outcome Y is usually referred to as the total effect of X on Y (path *c*). In contrast, the direct effect of X on Y (path *c'*) is the effect of X on Y after controlling for M. The indirect effect comprises the product of the effect of X on M (path *a*) and the effect of M on Y controlling for X (path *b*) and is quantified by computing the product term *ab* (see Figure 3). According to the widely used *product-of-coefficients approach*, mediation analysis involves the estimation of *ab* which is then tested for significance by dividing its point estimate by its standard error (calculated by the *Sobel Test* [Sobel, 1982]) and comparing the error's ratio to a nonparametric, empirically sampled distribution (using *bootstrapping* techniques) in order to reject the null hypothesis that *ab* equals zero[13].

When *ab* is significant, and the effect of X on Y decreases to zero once M is included in the model, *complete mediation* is said to have occurred (James & Brett, 1984). In this case, there is strong evidence that the investigated mediator dominantly accounts for almost all variance in the outcome variable. When the effect of X on Y remains significant, but decreases significantly, *partial mediation* is said to have occurred (Baron & Kenny, 1986).

For longitudinal data where repeated measures (Level 2) are nested within individuals (Level 1), this approach has been generalised to multilevel mediation modeling (Bauer, Preacher, & Gil, 2006) which provides a flexible and potent framework within which longitudinal mediational effects can be investigated in small samples[14].

[13] Whilst *ab*'s significance could be established by comparing its ratio to a standard normal distribution, bootstrapping techniques have been advocated as yielding more power to detect indirect effects in small samples (i.e. comprising 20 - 80 cases [Efron & Tibshirani, 1993]).

[14] Mediation analyses for the present study warranted the specification of multilevel mediation models as X and M were measured once (Level 2) whilst [interpersonal] daily hassles or depression severity (Y) were measured once daily over a period of one week (Level 1). However, using the MPlus software package (Muthén & Muthén, 2011), respectively specified models did not converge due to sample size restrictions. Hence, indirect effects had to be computed within simple mediation models where repeated measurements were aggregated and averaged across measurement time points.

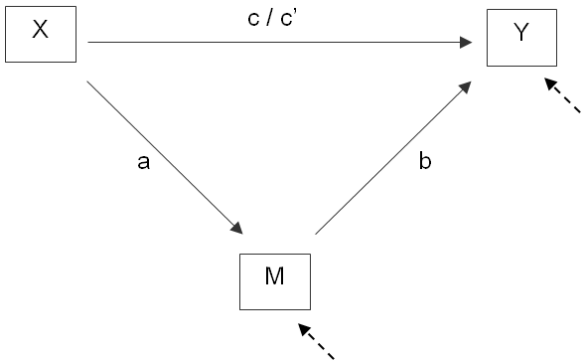


Figure 3. Simple Mediation: X affects Y indirectly via M.

Arrows originating from boxes indicate regressional pathways. Arrows not originating from boxes indicate residuals. X = Independent, M = Mediating and Y = Dependent Variable. Path *c* indicates the *total effect* of X on Y prior to the inclusion of M in the model; path *a* indicates the effect of X on M; path *b* the effect of M on Y, controlling for X; and path *c'* the *direct effect* of X on Y following the inclusion of M in the model.

Results

In line with the study's hypotheses, the following sections will describe (1) descriptive results from the questionnaire measures, experimental tasks and stress diaries; (2) relations between STIs and [interpersonal] daily hassles or depression severity; (3) relations between STIs and other vulnerability factors (overgeneral memory, childhood maltreatment, neuroticism and dysfunctional attitudes); and (4) results from the exploratory mediation analyses.

Group Comparisons

Hypothesis 1: Depressed patients will show higher levels of childhood maltreatment, neuroticism, dysfunctional attitudes, overgeneral memory, spontaneous trait inferences and [interpersonal] daily hassles than healthy controls[15].

Questionnaire measures.

Table 2 shows mean scores and standard deviations for the obtained measures of depression, anxiety, childhood maltreatment, neuroticism (and extraversion) and dysfunctional attitudes. Between and within-group differences for each measure are also indicated.

[15] To first provide a context for the experimental findings, the wording of the hypothesis was changed to reflect the following order of results: (1) questionnaire measures (childhood maltreatment, neuroticism and dysfunctional attitudes); (2) autobiographical memory task (overgeneral memory), (3) false recognition paradigm (spontaneous trait inferences) and (4) daily stress diaries ([interpersonal] daily hassles)

Table 2. Between-group differences of depression, anxiety, childhood maltreatment, personality and dysfunctional attitudes.

	DPs (n = 20)	HCs (n = 20)		
	M (*SD*)	*M* (*SD*)	Group effect	Cohen's *d*
Depression				
[Beck Depression Inventory, BDI-II]				
Total	37.65 (10.95)	4.10 (5.07)	$t(26.79) = 12.44$***	4.81
[Major Depression Inventory, MDI]				
Total	35.80 (5.50)	6.00 (4.22)	$t(38) = 19.22$***	6.24
Anxiety				
[Beck Anxiety Inventory, BAI]				
Total	26.40 (12.47)	5.70 (5.92)	$t(27.16) = 6.71$***	2.58
Childhood Maltreatment				
[Childhood Trauma Questionnaire - Short Form, CTQ-SF]				
Total†	2.02 (0.84)	1.61 (0.79)	$t(38) = 1.60$	.52
Emotional Abuse	2.40 (1.35)^{a}	1.89 (0.97)^{a}	$t(34.47) = 1.37$	.47
Physical Abuse	1.70 (1.14)^{b}	1.40 (0.81)^{b}	$t(38) = .96$	.31
Sexual Abuse	6.50 (2.59)^{c}	6.45 (3.69)^{c}	$t(38) = .50$	.16
Emotional Neglect	2.85 (1.13)^{d}	2.01 (1.16)^{ad}	$t(38) = 2.32$*	.75
Physical Neglect	1.85 (0.91)^{be}	1.44 (0.74)^{be}	$t(38) = 1.58$	.51
Personality				
[Revised Eysenck Personality Questionnaire - Short Form, EPQR-S]				
Neuroticism	0.76 (0.17)^{a}	0.30 (0.31)^{a}	$t(29.49) = 5.87$***	2.16
Extraversion	0.42 (0.30)^{b}	0.74 (0.29)^{b}	$t(38) = -3.39$**	-1.10
Dysfunctional Attitudes				
[Dysfunctional Attitudes Scale - Form A, DAS-A]				
Total	3.93 (0.77)	2.69 (0.98)	$t(38) = 4.43$***	1.44

Notes. To maintain consistency with clinical convention, sum scores are reported for the BDI-II, MDI and BAI. All other scores are reported as means. The group effect is based on independent-samples *t*-tests. It indicates the presence of a difference between groups on the respective measure for $p < .05$ (Bonferroni corrected). Within-group differences are based on 5 or 2-level repeated-measures ANOVAs respectively. Within each group, means with different superscripts differ at $p < .05$ or better. DPs = Depressed Patients; HCs = Healthy Controls.

† Without Minimization/Denial subscale.

*$p < .05$; **$p < .01$; ***$p < .001$.

As expected, DPs were significantly more depressed than HCs. Furthermore, DPs reported significantly higher levels of anxiety, neuroticism (and conversely lower levels of extraversion) and dysfunctional attitudes. Contrary to expectations, DPs and HCs did not differ on most indices of childhood maltreatment.

Overgeneral memory.

To test between-group differences in overgeneral memory, a 2x3 repeated-measures analysis of covariance (ANCOVA) was conducted, specifying 'group' as between factor, 'overgeneral memory' (positive, negative, neutral) as 3-level within factor and 'gender' as covariate.

Results showed that DPs reported significantly more overgeneral memories than HCs (DPs: *Mean* [*SD*] = 7.45 [3.52]; HCs: *Mean* [*SD*] = 2.85 [2.28], $F[2, 74] = 23.69$, $p = <.001$, $p\_\eta^2 = .39$). Gender did not predict additional variance once group affiliation was held constant. Neither the main effect of valence nor the interaction effects were significant, indicating similar levels of overgeneral memory across genders and valences.

Spontaneous trait inferences.

On average, participants made 32.70 (*SD* = 10.90) errors across all 96 recognition trials (≙ 34.06%). Table 3 provides an overview of the error rates for DPs and HCs.

Table 3. Descriptives of error frequencies for the False Memory Paradigm.

Measured Effects	DPs (n = 20) *M* (*SD*)	HCs (n = 20) *M* (*SD*)	Group effect	Cohen's *d*
1 General STIs	18.35 (8.23)	13.05 (6.78)	$t(38) = 2.22$*	.72
1.1 Person-specific	10.85[a] (4.16)	7.75[a] (3.91)	$t(38) = 2.43$*	.79
1.2 Trait-related	7.50[b] (4.77)	5.30[b] (3.60)	$t(38) = .11$	.04
2 Memory Errors	17.20 (5.61)	16.80 (3.83)	$t(38) = .79$	.26
2.1 Person-specific	10.25[a] (3.89)	10.25[a] (2.53)	$t(32.64) = 1.00$	.00
2.2 Trait-related	6.95[b] (4.06)	6.55[ab] (3.80)	$t(38) = .03$	.01

Notes. The group effect is based on independent-samples *t*-tests. It indicates the presence of a difference between groups at the respective assessment occasion at $p < .05$ or better. Within-group differences are based on a 4-level repeated-measures ANOVA (across effects 1.1, 1.2, 2.1 and 2.2). Within each group, means with different superscripts differ at $p < .05$ or better. DPs = Depressed Patients; HCs = Healthy Controls; STIs = Spontaneous Trait Inferences

*$p < .05$.

General spontaneous trait inferences.

To investigate participants' general tendency for making STIs, a 2x2 repeated-measures ANCOVA was computed, with 'group' as between factor, 'response' (general STIs [Effect1] vs. memory errors [Effect2]) as 2-level within factor and 'gender' as covariate. Results revealed a significant response x group interaction (F[1, 37] = 5.11, p = <.05, p_η^2 =.12). Post-hoc tests revealed significantly higher rates of STIs, but not memory errors, in DPs compared to HCs (see Figure 4 / Table 3 [p. 44]). Gender did not predict additional variance once group affiliation was held constant.

To further investigate this interaction, a 2x2x2 repeated-measures ANOVA was computed, with 'group' as between factor and 'trait type' (NFA, PE) and 'valence' (positive, negative) as 2-level within factors. Results revealed a significant main effect of group (cf above). Within participants, the trait type x valence interaction was significant (F[1, 38] = 27.41, p < .001, p_η^2 =.42), with post-hoc tests indicating significantly more negative NFA and positive PE-related general STIs across groups.

For memory errors, a respective 2x2 ANOVA (omitting the 'trait type' factor) revealed neither a significant main effect of group (cf. above) nor a significant interaction term, indicating similar rates of memory errors across groups and valences.

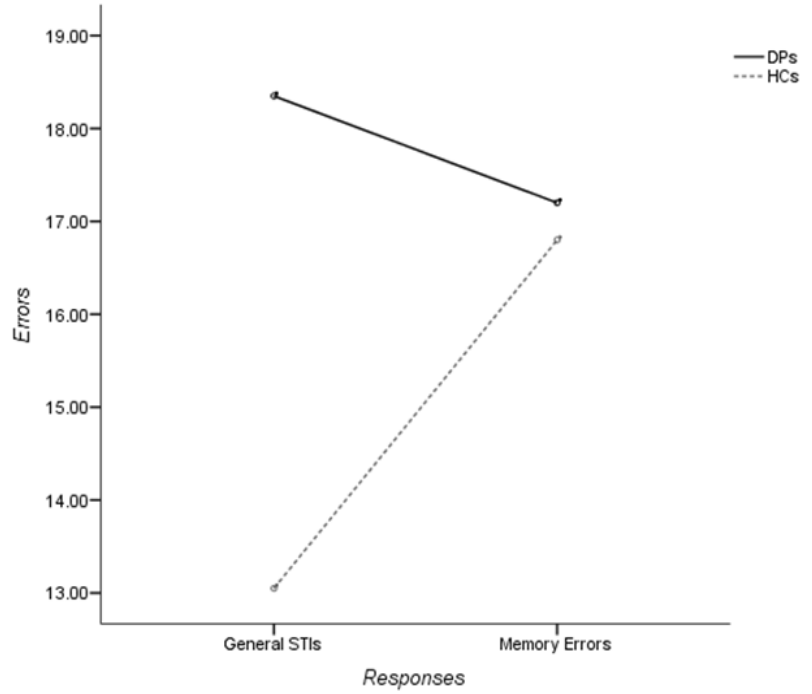


Figure 4. General spontaneous trait inferences (STIs) vs. memory errors. DPs = Depressed Patients; HCs = Healthy Controls.

Person-specific spontaneous trait inferences.

Next, to investigate *person-specific STIs* (i.e. STIs specifically bound to the originally presented face), a 2x2 repeated-measures ANOVA was computed with 'group' as between factor and 'response' (person-specific STIs [Effect1.1] vs. comparison errors [$MEAN_{\text{Effects 1.2, 2.1 and 2.2}}$]) as 2-level within factor. Results revealed significant main effects of group (F[1, 38] = 4.62, p = <.05, p_η^2 =.11) and response (F[1, 38] = 6.85, p = <.05, p_η^2 =.15). The group x response interaction was marginally significant, strongly suggesting a trend for higher rates of person-specific STIs, but not comparison errors, in DPs than HCs (F[1, 38] = 3.80, p =.06, p_η^2 =.09; see Figure 5).

To further apportion this effect, an additional 2x2x2 repeated-measures ANOVA was computed with 'group' as between factor and 'trait type' (NFA, PE) and 'valence' (positive, negative) as 2-level within factors. Further to the significant main effect of group (cf. above), neither the main effects of trait type and valence nor the interaction effects were significant, indicating similar levels of person-specific STIs across trait types and valences.

For comparison errors, a respective 2x2 ANOVA (omitting the 'trait type' factor) revealed neither a significant main effect of group (cf. above) nor a significant interaction, indicating similar rates of comparison errors across groups and valences.

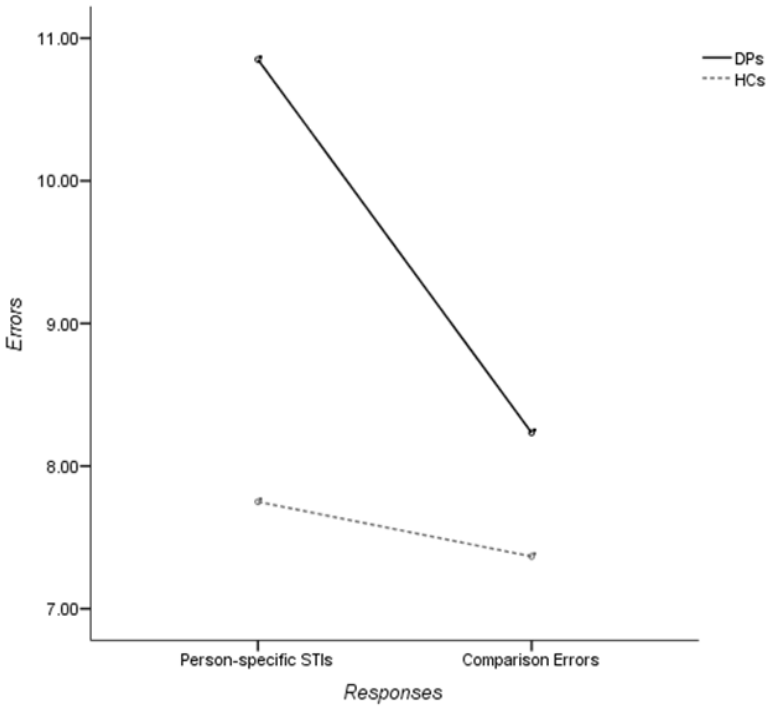


Figure 5. Person-specific spontaneous trait inferences (STIs) vs. comparison errors. DPs = Depressed Patients; HCs = Healthy Controls.

Psychological trait variables and spontaneous trait inferences.

To identify psychological variables that were associated with STIs, partial correlations between STIs and questionnaire measures were computed controlling for memory or comparison errors respectively. *Within DPs*, results revealed significant associations between general and person-specific STIs and *depression severity* (Table 4, p. 52). Holding depression severity constant, STIs further correlated with *childhood maltreatment* (Table 5, p. 53). For trait-related STIs, partial correlations[16] were non-significant, suggesting that the associations were driven by the variables' effects on *person-specific* STIs.

Depression severity.

Following up the significant correlation between patients' person-specific STIs and depression severity, DPs were median-split into two subgroups, based on their BDI scores. Individually matched HCs were allocated accordingly. Results from the ANOVA specified above revealed a significant group x response interaction (F[1, 18] = 5.14, p = < .05, p_η^2 =.22). Post-hoc tests revealed higher rates of person-specific STIs, but not comparison errors, in DPs with higher depression severity (i.e. scoring above the median), compared to individually matched HCs. For DPs with lower depression severity (i.e. scoring below the median), neither the main effects of group or response nor the interaction were significant.

Computing the 2x2x2 repeated-measures ANOVA with 'group' as between and 'valence' (positive, negative) and 'trait type' (NFA, PE) as 2-level within-group factors revealed a significant main effect of group for DPs with higher (F[1, 18] = 6.79, p < .05, p_η^2 =.27), but not lower depression severity vs. HCs. The main effects of trait type and valence as well as respective interactions were not significant for either DP-subgroup.

Childhood maltreatment.

DPs with above and below-median scores on the CTQ-SF were compared with respectively matched HCs. For DPs with higher levels of childhood maltreatment, results revealed a significant group x response interaction (F[1, 18] = 6.63, p = < .05, p_η^2 =.27), indicating higher rates of person-specific STIs, but not comparison errors, in DPs vs. HCs. For DPs with lower levels of childhood maltreatment, neither the main effects of group or response, nor the interaction were significant.

Computing the 2x2x2 repeated-measures ANOVA with 'group' as between and 'valence' (positive, negative) and 'trait type' (NFA, PE) as 2-level within-group factors revealed a significant main effect of group for DPs with higher (F[1, 18] = 8.05, p < .05, p_η^2 =.31), but not lower levels of childhood trauma vs. HCs. The main effects of trait type and valence as well as respective interactions were not significant for either DP-subgroup.

In order to investigate a potential interaction effect of depression severity and childhood severity on DPs' person-specific STIs, a 2x3 repeated-measures ANOVA compared responses of DPs who scored above the median on none, one, or both of these constructs with respectively

[16] Here, comparison errors comprised effects *1.1*, 2.1 and 2.2.

matched HCs. Results revealed non-significant main effects of group or response. The group x response interaction revealed a trend (F[2, 37] = 2.91, p = .07, p_η2 =.14) whose examination, however, suggested no additional effect for DPs with high levels of both depression severity and childhood trauma on person-specific STIs. As BDI-II and CTQ-SF scores were further not correlated within DPs, depression severity and childhood trauma appear to contribute independently to STIs.

Stress diary data.

Follow-up data was provided by *n* = 18 DPs and 18 HCs (*N* = 36 ≙ 90 percent).

Daily mood ratings.

For the daily mood ratings, missing values were imputed using the Expectation Maximization (EM) algorithm which estimates missing values based on a variety of available data parameters[17]. To compare participants' mood ratings, a 7x2 repeated-measures ANCOVA was computed with 'group' as between factor, 'time' as 7-level within factor and 'gender' as covariate. Results revealed a significant main effect of group (F[1, 33] = 34.05, p = <.001, p_η^2 =.51) indicating that DPs reported significantly lower mood than HCs over time. Furthermore, the main effect of time was significant (F[6, 198] = 2.42, p = <.05, p_η^2 =.07), indicating significant variations of mood ratings over time across groups. The time x group interaction was not significant indicating comparable variations of mood over time across groups. Across participants, daily mood ratings correlated significantly with the MDI (r = .82, p <. 001) and BDI-II (r = .79, p <. 001).

[Interpersonal] daily hassles.

Following examination of the diary data, extreme outliers were identified on a case-by-day-by-outcome variable basis[18]. To minimise missing data, outlying values were then substituted with the respective subject's mean weighted frequency rating on the respective outcome variable across the 7-day period less the outlying value if the subject had provided at least two different ratings which were not classified as outliers[19].

To compare the weighted frequency of total and dependent [interpersonal] daily hassles for DPs vs. HCs, four 7x2 repeated-measures ANCOVAs were computed with 'group' as between factor, 'time' as 7-level within factor and 'gender' as covariate.

For total daily hassles, results indicated that DPs reported significantly more daily hassles than HCs (F[1, 32] = 9.65, p = <.01, p_η^2 =.23). The main effect of time and the group x time interaction were not significant, indicating comparable levels of daily hassles over time within groups. Gender did not predict additional variance when group affiliation was held constant. Similar

[17] Little's MCAR test (Little, 1988), which tests the assumption and prerequisite for the use of the EM algorithm that the data are missing completely at random, indicated missing values for 2.8% (Day 6) and 5.6% of cases (Day 7). The non-significant index statistic χ^2 (12) = 7.69 indicated that the EM technique could be applied.

[18] As defined by respective frequency scores '> 75th percentile + 3 x interquartile range'. Outcome variables were total daily hassles, NFA-related (i.e. interpersonal) daily hassles, dependent daily hassles and dependent NFA-related daily hassles.

[19] Note that data imputation using the EM algorithm was not feasible for this analysis as extreme cases were excluded systematically, and the data were hence not missing completely at random. One DP was excluded for weighted frequency of total daily hassles and dependent daily hassles, as ratings were classified as extreme outliers on 6 of 7 days and the remaining value did not suffice to compute an imputable mean value.

results were obtained for interpersonal daily hassles (F[1, 32] = 25.10, p = <.001, p_η^2 =.44), dependent daily hassles (F[1, 32] = 13.53, p = <.01, p_η^2 =.30) and dependent interpersonal daily hassles (F[1, 32] = 15.65, p = <.001, p_η^2 =.33).

Summary.

Compared to HCs, DPs reported significantly higher levels of *general* and *person-specific STIs* (i.e. a stronger tendency to ascribe NFA and PE-related traits to [previously linked] faces of individuals) when memory performance was held constant, OGM, DAs, anxiety, an aspect of childhood maltreatment and neuroticism. Moreover, patients' tendencies to make person-specific STIs were independently associated with higher levels of depression severity and childhood maltreatment. Finally, DPs reported significantly lower mood and more frequent and/or stressful [interpersonal] daily hassles than HCs over the 7-day follow-up period. Hence, Hypothesis 1 was supported.

Spontaneous Trait Inferences and [Interpersonal] Daily Hassles / Depression

Hypothesis 2: Spontaneous trait inferences will positively correlate with [interpersonal] daily hassles and depression severity.

Table 4 shows bivariate correlations between STIs and [interpersonal] daily hassles or depression severity both within DPs and across participants. To investigate whether the reported associations are concomitants of depression, partial correlations further indicate associations controlling for levels of depression.

Table 4. Bivariate correlations between spontaneous trait inferences and [interpersonal] daily hassles and depression severity.

Panel 1: Within depressed patients (*n* = 20)

		STIs	
		General	Person-specific
Daily Hassles	Total	-	-
	Total IP	-	-
	Dep Total	-	-
	Dep IP	-	-
Depression	BDI	.48*	.61**
	MDI	.46*	.48*
	Daily Mood	-	-

Panel 2: Across total sample (*N* = 40)

		STIs	
		General	Person-specific
Daily Hassles	Total	-	-
	Total IP	.40* [-]	-
	Dep Total	.38* [-]	-
	Dep IP	.41* [-]	-
Depression	BDI	.49**	.48**
	MDI	.41*	.38*
	Daily Mood	-	-

Notes. Only significant correlations are presented. Coefficients in square brackets indicate partial correlations, controlled for levels of depression (i.e. BDI and MDI scores). All correlations control for memory or comparison errors respectively. BDI = Beck Depression Inventory; Dep = Dependent; IP = Interpersonal; MDI = Major Depression Inventory; STIs = Spontaneous Trait Inferences

*$p < .05$; **$p < .01$.

Summary.

Within DPs, both general and person-specific STIs correlated with indices of concurrent depression severity. *Across participants*, a similar pattern was observed. In addition, general STIs correlated with indices of [interpersonal] daily hassles prior to controlling for depression severity. Hence, Hypothesis 2 was partly supported.

Spontaneous Trait Inferences and Other Vulnerability Factors

Hypothesis 3: Spontaneous trait inferences will positively correlate with overgeneral memory, childhood maltreatment, neuroticism and dysfunctional attitudes.

Table 5 shows bivariate correlations between STIs and OGM, childhood maltreatment, neuroticism (and extraversion) and dysfunctional attitudes both within DPs and across participants. As before, partial correlations further indicate associations controlling for levels of depression.

Table 5. Bivariate correlations between STIs and overgeneral memory, childhood maltreatment, neuroticism (and extraversion) and dysfunctional attitudes.

Panel 1: Within depressed patients (*n* = 20)

		STIs	
		General	Person-specific
OGM	AMT	-	-
Maltx	CTQ-SF	.64** [.54*]	.70** [.63**]
Personality	N	-	-
	E	-	-
Attitudes	DAS-A	-	-

Panel 2: Across participants (*N* = 40)

		STIs	
		General	Person-specific
OGM	AMT	-	-
Maltx	CTQ-SF	.52** [.40**]	.54*** [.44**]
Personality	N	-	-
	E	-	-
Attitudes	DAS-A	.37* [-]	.41** [-]

Notes. Only significant correlations are presented. Coefficients in square brackets indicate partial correlations, controlled for levels of depression severity (i.e. BDI and MDI scores). All correlations further control for memory or comparison errors respectively. AMT = Autobiographical Memory Task; DAS-A = Dysfunctional Attitudes Scale - Form A; E = Extraversion; Maltx = Childhood maltreatment; N = Neuroticism; OGM = Overgeneral Memory; STIs = Spontaneous Trait Inferences

*p < .05; **p < .01; ***p < .001.

Summary.

Within DPs, STIs correlated with childhood maltreatment when depression severity was held constant. No significant correlations emerged between STIs and OGM, neuroticism, or dysfunctional attitudes. *Across participants*, STIs correlated with childhood maltreatment when depression severity was held constant. Moreover, STIs correlated with DAs; however this association was accounted for by participants' depression severity. Hence, Hypothesis 3 was partly supported.

Conclusion

Overall, DPs made more general and person-specific STIs than HCs. Within DPs, STIs correlated with indices of depression severity. Across participants, STIs further correlated with indices of [interpersonal] daily hassles. These effects were accounted for by depression severity, hence pointing to an epiphenomenal role of STIs in depression. Within DPs, STIs correlated with childhood maltreatment independently from depression severity; hence raising the possibility that a history of early adversity may form a vulnerability factor for a tendency to make STIs.

Exploratory Mediation Analyses

Although the focus of the present study lay on the demonstration of STIs in depressed individuals and their relation to [interpersonal] stress generation, depression and other vulnerability factors, exploratory mediation analyses further sought to examine the role of a high (i.e. general) level of construal in the generation of [interpersonal] daily hassles and, more broadly, the maintenance of depression. Hence, STIs and OGM were investigated as cognitive 'interfaces' between (1) [interpersonal] daily hassles or depression severity as a function of other vulnerability factors; and (2) [interpersonal] daily hassles as a function of depression severity. In the respectively specified mediation analyses, 'depression severity' was alternatively operationalised using participants' *daily mood ratings* ($MEAN_{Days1to7}$) or *BDI scores* depending on the variable's temporal relation to the other variables in the mediation chain[20]. As mediation is a purely regression-based procedure, the assumed causal nature of the regressional links must be modelled by including a temporal offset between changes in the mediator and changes in outcome. This *temporal precedence* has been emphasised as a necessary criterion to establish mediation (Cole & Maxwell, 2003; Kraemer, Wilson, Fairburn, & Agras, 2002). Indirect effects were calculated using a bootstrapping approach with 5000 resamplings (cf. p. 39). The following mediational models were tested:

[20] For example, in analyses which specified 'depression severity' as outcome variable, daily mood ratings were used, as they were measured *after* the respective mediating (which was measured at the experimental session) or independent variable (which was measured before the experimental session). Conversely, in analyses which specified depression severity as independent variable, BDI scores were used, as they were measured before the respective mediating or outcome variables.

Spontaneous trait inferences may mediate the relationships between [ ].

1 distal vulnerability factors and depression severity / [interpersonal] daily hassles

2 dysfunctional attitudes and depression severity / [interpersonal] daily hassles

3 depression severity and [interpersonal] daily hassles

Overgeneral memory may mediate the relationships between [ ].

4 distal vulnerability factors and depression severity / [interpersonal] daily hassles

5 dysfunctional attitudes and depression severity / [interpersonal] daily hassles

6 depression severity and [interpersonal] daily hassles

Figure 6 provides an illustration of the tested mediational pathways. Table 6 (p. 58) features significant indirect effects and the respectively estimated path coefficients.

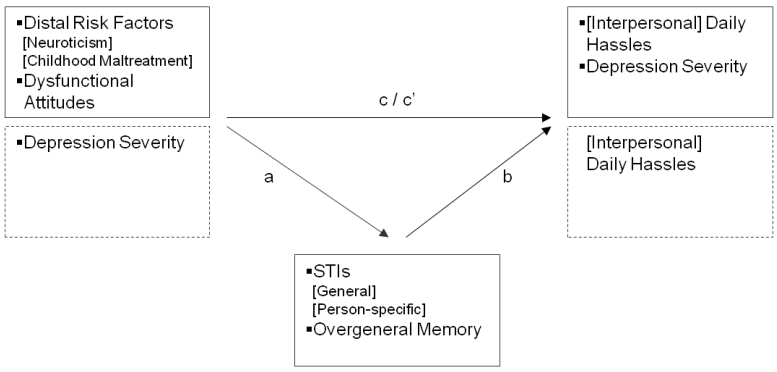


Figure 6. Spontaneous trait inferences (STIs) or overgeneral memory mediating relationships between (1) vulnerability factors and [interpersonal] daily hassles or depression severity; or (2) depression severity and [interpersonal] daily hassles

Table 6. Path coefficients and indirect effects for significant mediational pathways.

	Coefficients		Indirect effect (*ab*)[α]			
Paths	B	*SE*	*M*	*SE*	R^2_{med}[β]	
Person-specific spontaneous trait inferences						
	Childhood Maltreatment; Concurrent Depression Severity					
	(Childhood Trauma Questionnaire - Short Form, CTQ-SF; Beck Depression Inventory, BDI-II)					
c	8.80*	3.51	6.78*	3.49	.15	complete mediation
a	3.24***	.69				
b	2.08*	.80				
c’	2.07	4.15				
	Dysfunctional Attitudes; Concurrent Depression Severity					
	(Dysfunctional Attitudes Scale - Form A; Beck Depression Inventory, BDI-II)					
c	11.53***	2.21	2.31*	1.53	.20	partial mediation
a	1.55*	.64				
b	1.44*	.55				
c’	9.30***	2.21				
Overgeneral memory						
	Childhood Maltreatment; Depression Severity					
	(Childhood Trauma Questionnaire - Short Form, CTQ-SF; Daily Mood Ratings [$MEAN_{Days1to7}$])					
c	.43*	.17	.23*	.13	.13	complete mediation
a	1.38*	.64				
b	.17***	.04				
c’	.20	.14				
	Neuroticism; Depression Severity					
	(Revised Eysenck Personality Questionnaire - Short Form, EPQR-S; Daily Mood Ratings [$MEAN_{Days1to7}$])					
c	1.76***	.34	.71**	.34	.34	partial mediation
a	6.00***	1.32				
b	.12**	.04				
c’	1.06*	.39				
	Dysfunctional Attitudes; Depression Severity					
	(Dysfunctional Attitudes Scale - Form A; Daily Mood Ratings [$MEAN_{Days1to7}$])					
c	.43**	.12	.23**	.11	.22	complete mediation
a	1.48**	.47				
b	.15***	.04				
c’	.21	.12				

Table 6. (*continued*)

	Coefficients		Indirect effect (*ab*)[α]			
Paths	B	*SE*	*M*	*SE*	R^2_{med}[β]	
	Depression Severity; Total Daily Hassles					
	(Beck Depression Inventory, BDI-II; Total Daily Hassles [$MEAN_{\text{Weighted FrequencyDays1to7}}$])					
c	.08**	.02	.03*	.02	.21	complete mediation
a	.11***	.02				
b	.27	.15				
c'	.05	.03				

Notes. Path c denotes the total effect of the independent variable (X) on changes in outcome (Y). *Path a* denotes the effect of changes in X on the proposed mediator (M). *Path b* denotes the effect of changes in M on changes in Y, controlling for X. *Path c'* denotes the direct effect of X on Y, controlling for M.

[α] In each analysis, significance of the indirect effect *ab* was based on an empirical distribution using 'bootstrapping' with 5000 resamples.

[β] The effect size measure R^2_{med} of the indirect effect was based on the *second-order common effect* (Fairchild, MacKinnon, Taborga, & Taylor, 2009) which denotes the proportion of variance in the outcome variable that is explained by the indirect effect (i.e. both the independent variable and the mediator, but not by either variable alone).

[†] All estimated coefficient pertain to the whole sample.

*p < .05; **p < .01; ***p <.001.

Summary.

Across participants, person-specific STIs were not found to mediate temporally offset relationships between vulnerability factors for depression and [interpersonal] daily hassles or depression severity. Discounting the criterion of temporal precedence, however, person-specific STIs were found to contemporaneously account for the relationships between (1) childhood maltreatment and concurrent depression severity and (2) dysfunctional attitudes and concurrent depression severity.

By contrast, OGM mediated the relationships between (1) vulnerability factors and prospective depression severity and (2) current depression severity and prospective daily hassles.

Hypotheses Revisited

See Table 7 for an overview of hypotheses, exploratory analyses and results.

Table 7. Overview of hypotheses, exploratory analyses and results.

Hypotheses			Results
1	DPs will show higher levels of [ ] than HCs		
	spontaneous trait inferences	✓	DPs showed higher levels of both general and person-specific STIs[†]
	overgeneral memory	✓	
	childhood maltreatment	(✓)	DPs showed higher levels of emotional neglect
	neuroticism	✓	
	dysfunctional attitudes	✓	
	[interpersonal] daily hassles	✓	
2	Spontaneous trait inferences will positively correlate with [ ]		
	[interpersonal] daily hassles	(✓)	General STIs correlated with indices of [interpersonal] daily hassles across participants. The effect was accounted for by depression severity.
	depression severity	✓	Within DPs, general and person-specific STIs correlated with indices of concurrent depression severity. Across participants, a similar pattern was observed.
3	Spontaneous trait inferences will positively correlate with [ ]		
	overgeneral memory	-	-
	childhood maltreatment	✓	Childhood maltreatment correlated with STIs both within DPs and across participants.
	neuroticism	-	-
	dysfunctional attitudes	(✓)	Dysfunctional attitudes correlated with general and person-specific STIs across participants. The effect was accounted for by depression severity.

Table 7. (*continued*)

Exploratory analyses			Results[α]	
Spontaneous trait inferences may mediate the relationships between [ ] and [ ]				
1	childhood maltreatment	depression severity	-	Person-specific STIs accounted for the relationship between childhood maltreatment and concurrent depression severity
		[interpersonal] daily hassles	-	
	neuroticism	depression severity	-	
		[interpersonal] daily hassles	-	
2	dysfunctional attitudes	depression severity	-	Person-specific STIs accounted for the relationship between dysfunctional attitudes and concurrent depression severity
		[interpersonal] daily hassles	-	
3	depression severity	[interpersonal] daily hassles	-	
Overgeneral memory may mediate the relationships between [ ] and [ ]				
4	childhood maltreatment	depression severity	✓	
		[interpersonal] daily hassles	-	
	neuroticism	depression severity	✓	
		[interpersonal] daily hassles	-	
5	dysfunctional attitudes	depression severity	✓	
		[interpersonal] daily hassles	-	
6	depression severity	[interpersonal] daily hassles	(✓)	Overgeneral memory mediated the relationship between depression severity and total daily hassles

Notes. ✓= Hypothesis was supported; (✓) = Hypothesis was partly supported; - = Hypothesis was not supported; DPs = Depressed Patients; HCs = Healthy Controls; STIs = Spontaneous Trait Inferences.

[α] All indirect effects pertain to findings across participants.

[†] Patients' tendency to make *person-specific STIs* was further independently associated with higher levels of depression severity and childhood trauma.

Discussion

First, results of the present study will be summarised. Subsequent sections will embed the findings into a broader literature context, highlight strengths and limitations of the study as well as suggestions for future research, and outline ensuing theoretical and clinical implications.

Group Differences (Hypothesis 1)

The main hypothesis was that depressed patients (DPs) would show higher levels of spontaneous trait inferences (STIs) than healthy controls (HCs). Furthermore, DPs were expected to show higher levels of overgeneral memory (OGM), childhood maltreatment, neuroticism (N), dysfunctional attitudes (DAs) and [interpersonal] daily hassles than HCs.

Spontaneous trait inferences.

STIs occur when "in the absence of both the intention to do so and awareness of having done so, trait labels are used to categorise behaviour during the encoding stage of information processing" (Moskowitz, 1993, p. 132). Whilst general STIs describe a tendency to ascribe trait labels to individuals *per se*, person-specific STIs limit such an ascription to specific, previously associated individuals. In the present study, the tendency to make STIs was investigated with a novel adaptation of a False Recognition Paradigm (cf. pp. 33-35): Participants encoded faces of individuals and behavioural descriptions which were suggestive of - but did not explicitly feature - personality traits which (1) were conceptually linked to the DAS-A ('Need for Approval' and 'Performance Evaluation') and (2) had been identified to be of relevance in depressed individuals. In the subsequent recognition phase, participants were presented with the same facial stimuli and asked to indicate whether an individual had been described as [*trait*].

Compared to HCs, DPs showed significantly higher levels of general and person-specific STIs, when explicit memory performance was held constant. That is, in line with Tulving and Thomson's (1973) principle of encoding specificity[21], DPs ascribed a higher proportion of traits to (faces of) individuals upon prior encoding of suggestive-but-ambiguous behavioural descriptions.

There are a number of possible explanations for this effect. First, in healthy individuals, spontaneous inferences of *aggressive* traits have been found to successfully discriminate between aggressive and non-aggressive individuals (Zelli et al., 1996; Zelli, Rowell Huesmann, & Cervone, 1995). In line with Heider's (1958) classic observation that individuals tend to interpret information in accordance with their own personal characteristics, it is possible that DPs merely ascribed those traits to others which they possessed themselves. However, this explanation is unlikely, as DPs with higher levels of dysfunctional attitudes (and hence likely conceptually linked traits) did not show higher levels of STIs. Although a correlation between STIs and DAS-A scores was found across participants, it was fully accounted for by depression severity; a finding which suggests that STIs are attributable to processes other than 'projection'.

[21] The principal states that retrieval cues are the more effective the more they resemble the information that was originally encoded. Therefore, if DPs make STIs at encoding, related trait words should serve as effective retrieval cues.

Second, linked to the above research on aggressive individuals' proneness to make STIs, it is possible that *aggression* might form a dispositional characteristic associated with STIs *per se*. Cross-sectional studies have yielded ample evidence for an association between depression and aggression (Dutton & Karakanta, 2013). In the present study, DPs further reported significantly more interpersonal daily hassles than HCs; a finding which could have been mediated by DPs' levels of aggression which were not measured in the present study. However, closer examination of the theoretical literature on aggression reveals that aggressive behaviour has been conceptualised as a retaliative behaviour against others who are (spontaneously) perceived to be intentionally harmful (Dodge & Crick, 1990). Within such a framework, it would be unlikely that DPs would spontaneously infer both *positive* and negative *non*-hostile traits, which are unlikely to be linked with perceptions of impending harm; and whilst an influence of trait aggression cannot be ruled out, it is unlikely to have influenced the present findings.

Third, the increased STI rate in DPs could be conceptualised as an epiphenomenon of other episodic memory particularities associated with depression. Whilst some studies have shown that DPs show memory biases for negatively valenced information in explicit (Blaney, 1986) or - to a lesser extent - implicit memory paradigms (Watkins, Vache, Verney, & Mathews, 1996; Watkins, 2002), other studies reported no correlation between episodic memory and current depressive symptoms (Simons et al., 2009). In the present study, DPs' explicit memory performance was controlled. Moreover, STIs did not correlate with DPs' overgeneral memory - an alternative index of episodic memory functioning. Hence, explicit memory biases are unlikely to have accounted for STIs. Regarding implicit memory processes, DPs did not show increased levels of negative compared to positive STIs in the present study. The results are consequently out of keeping with some literature finding an implicit memory bias for negative information in DPs[22]; however, *other* implicit memory processes might still contribute to the observed phenomenon.

If 'projection', dispositional aggression, or general episodic memory biases are unlikely to account for the observed STIs, what might?

Dual process models have long been used to account for various social psychological phenomena including automatic person perception (Gilbert, 1989). Such models usually distinguish between (1) a preconscious, automatic and effortless mode of information processing ('*associative processing*' [Smith & DeCoster, 1999]) and (2) a conscious, elaborate and thorough mode ('*reflective processing*' [Smith & DeCoster, 2000]), as a function of respectively available cognitive or motivational resources. It has been suggested that associative processing guides information retrieval by using a "similarity between [...] cues and stored memory representations" (Smith & DeCoster, 2000, p. 111). It has further been linked to everyday phenomena such as 'intuitions' or 'gut feelings' (Beevers, 2005).

[22] Of note, however, the present study did not include a mood induction which is commonly used to study the effect of affect on memory (Blaney, 1986; Dalgleish & Watts, 1990).

A recent dual process model of cognitive vulnerability for depression (Beevers, 2005) has highlighted the role of low mood in depleting individuals' cognitive resources, thereby facilitating an associative and hindering a reflective processing mode[23]. Indeed, substantial empirical evidence has supported the notion that depression reduces cognitive capacity, motivation and effortful (i.e. reflective) processing (Cohen, Weingartner, Smallberg, Pickar, & Murphy, 1982; Hartlage, Alloy, Vázquez, & Dykman, 1993; Willner, 1984). Hence, DPs' tendency to make STIs may be understood within a dual-processing framework where low mood might deplete patients' cognitive and/or motivational resources and thereby facilitate associative, rather than reflective information processing.

Overgeneral memory.

In line with a number of previous studies, DPs showed significantly higher levels of OGM than HCs (for a review, see Williams, Barnhofer, Crane, et al., 2007). Moreover, consistent, with previous research, effects were found across positive and negative (Goddard et al., 1996; Kuyken & Brewin, 1995; Kuyken & Dalgleish, 1995; Peeters et al., 2002) as well as neutral cue words (Brittlebank et al., 1993).

Other vulnerability factors.

Similarly, DPs showed significantly higher levels of neuroticism (and conversely lower levels of extraversion) and dysfunctional attitudes than HCs. By contrast, both groups reported comparable levels of childhood maltreatment; a finding which is in line with findings from a recent study (Stiles, Barkham, Mellor-Clark, & Connell, 2008) which reported that 63.3% of patients seen by National Health Service (NHS) primary care services suffered from depression, whilst only 15.3% suffered from trauma or abuse.

Whilst it has been difficult to establish reliable prevalence rates for childhood maltreatment in the general population, a recent comprehensive study estimated its prevalence in a sample of *N* = 2869 young adults from the UK as 12% (May-Chahal & Cawson, 2005); a rate which is in keeping with the observed maltreatment rates in the present sample.

[Interpersonal] daily hassles.

Last, in accordance with previous research (McIntosh et al., 2010; Trickey et al., 2011), DPs reported significantly more frequent and/or stressful [interpersonal] daily hassles over the 7-day follow-up period than HCs. Interestingly, the results do not support Hammen's (1991) postulate that depressed individuals specifically experience more *dependent* than independent negative life events (i.e. negative life events which are influenced by their own behaviour). Unlike previous studies which found such a differential effect (e.g. Cui & Vaillant, 1997; Maciejewski, Prigerson, &

[23] Whilst the model postulates a negative retrieval bias, sufficient empirical support for this notion is lacking. It is possible that the cognitive and motivational depletion associated with depression may facilitate a tendency for *general*, rather than negatively biased associative processing. In line with this possibility, some studies have observed that associative processing was generally facilitated when a cue word's valence matched the valence that had earlier been associated with a prime (Hermans, Baeyens, & Eelen, 2003); suggesting that a tendency for associative processing may encompass the retrieval of both positive and negative information if respectively valenced retrieval cues are presented.

Mazure, 2000), DPs' in the present sample reported comparable rates of dependent and independent [interpersonal] daily hassles. However, since previous studies usually conceptualised 'negative life events' as major, rather than minor events, it is possible that conceptual differences account for the present finding. Alternatively, it is conceivable that the follow-up period was too short to detect a differential emergence of dependent [interpersonal] daily hassles. For example, a study which investigated the role of dependent vs. independent life events for first onset depression (Harkness, Monroe, Simons, & Thase, 1999), found significantly higher rates of dependent vs. independent life events across a 12, but not 3-month period prior to first onset depression, suggesting the necessity for broad prospective timeframes.

Spontaneous Trait Inferences and [Interpersonal] Daily Hassles / Depression (Hypothesis 2)

Hypothesis 2 postulated that spontaneous trait inferences would positively correlate with [interpersonal] daily hassles and depression severity.

Within DPs, STIs correlated with levels of depression severity. *Across participants*, significant correlations were found between STIs and indices of concurrent depression severity. General STIs further correlated with interpersonal daily hassles; however, this relation was accounted for by participants' depression severity. This correlational pattern suggests an epiphenomenal rather than predisposing role of STIs in depression. However, their association with prospectively measured interpersonal hassles suggests a contribution of depressogenic person perception to interpersonal stress and thereby the maintenance of depression.

Spontaneous Trait Inferences and Other Vulnerability Factors (Hypothesis 3)

Hypothesis 3 postulated that spontaneous trait inferences would positively correlate with overgeneral memory, childhood maltreatment, neuroticism and dysfunctional attitudes.

Within DPs, STIs correlated with childhood maltreatment when depression severity was held constant hence suggesting a history of childhood maltreatment as a vulnerability factor for spontaneous trait inferences. Moreover, DPs' tendency to make STIs was associated with high, but not low levels of childhood maltreatment. In keeping with a dual-process model of information processing, childhood maltreatment has been found to (1) impact negatively on social information processing (Chen, Coccaro, Lee, & Jacobson, 2012; Ford, 2005), (2) facilitate associative processing of self-perceptions (Van Harmelen et al., 2010) and (3) lead to a 'diffuse' perceptive style which is characterised by difficulties in detecting nuances in past or present perceptual stimuli in children (Rogosch, Cicchetti, & Aber, 1995). Hence, childhood maltreatment may, like depression, deplete individuals' cognitive and/or motivational resources to process information reflectively thereby facilitating an associative information processing mode which may underlie DPs' tendency to make STIs. Somewhat surprisingly, STIs did not correlate with OGM, neuroticism, or dysfunctional attitudes. It is conceivable that depression may affect higher cognitive functions such as executive control (Dalgleish et al., 2007) in tasks which require reflective processing (such as imagery or systematic searching - both likely to be involved in the Autobiographical Memory Task).

By contrast, depression might not *change* associative processing modes (Hartlage et al., 1993), but rather render them more likely to occur. However, further research is needed to this regard.

Across participants, STIs correlated with childhood maltreatment when depression severity was held constant. Moreover, STIs correlated with DAs; however this association was accounted for by participants' depression severity and may form an artefact of the STIs' conceptual overlap with the Dysfunctional Attitude Scale.

Exploratory Mediation Analyses

Across participants, STIs did not mediate relationships between vulnerability factors and prospectively measured outcome measures. However, person-specific STIs accounted for the relationships between childhood maltreatment or DAs and *concurrent* depression severity. Whilst these findings cannot be interpreted causally, they provide an initial indication that STIs may contribute to the maintenance of depression by forming a possible interpersonal 'outlet' for early adverse experiences or DAs. Future studies will need to investigate whether interventions aimed at elaborating person perception may reduce individuals' DAs and thereby cognitive vulnerability.

By contrast, OGM mediated the relationships between childhood maltreatment, N, or DAs and prospectively measured depression. These findings are consistent with a recent study reporting significant associations between a diagnosis of post-traumatic stress disorder, OGM and prospective depression (Kleim & Ehlers, 2008); yet out of keeping with other studies which have failed to find an association between trauma history and OGM (see Moore & Zoellner, 2007 for a review). Moreover, the findings extend Scott et al.'s (1995) findings who reported significant correlations between N, DAs, or OGM and the duration of a depressive episode.

Whilst previous research reported that DAs mediated the relationship between childhood maltreatment and depression severity (Alloy, Abramson, Smith, Gibb, & Neeren, 2006), the present study contributes to this literature by introducing OGM as a possible intermediary factor.

OGM further mediated the relationship between depressive symptoms and prospective daily hassles. This finding is in line with a recent study which demonstrated that OGM moderated the relationship between depression and chronic daily hassles (Anderson et al., 2010). It has been suggested that moderators and mediators can be distinguished by their temporal position within an array of variables (Kraemer, Stice, Kazdin, Offord, & Kupfer, 2001). Hence, OGM would *mediate* the effect of depression on daily hassles if it changed *after* the onset of depression. By contrast, OGM would *moderate* the effect if it affected depression *prior* to its effect on daily hassles. The present study does not permit a sophisticated investigation of temporal sequencing and future research should further investigate the conceptual role of OGM in linking vulnerability factors and depression.

Overall, the findings add to the literature on mediational pathways in depression (see e.g. Alloy, Abramson, Smith, et al., 2006; Lakdawalla & Hankin, 2008; Wetter & Hankin, 2009) by suggesting OGM and, to a lesser extent, STIs as potential 'baseline' processes underlying some of the reported associations in the depression literature. However as respective effects were detected

across participants only, respective results need to be interpreted with caution and have to be viewed as preliminary.

Strengths and Limitations

The study is the first to demonstrate STIs in patients with unipolar major depressive disorder using a novel paradigm. In addition, the study is the first to show that these experimentally measured STIs may (1) indicate stereotyped person perception in the context of a history of childhood maltreatment, or (2) contribute to DPs' elicitation or experience of [interpersonal] daily hassles. Moreover, the combined cross-sectional and prospective aspects of the study allowed for a roughly time-lagged estimation of indirect effects. However, the exploratory mediational analyses only partially support the possibility that OGM and, to a lesser extent, STIs contribute to the generation of [interpersonal] daily hassles or the maintenance of depression respectively.

The present study has several limitations. First, participants with moderate-to-severe depression are likely to suffer from a high degree of co-morbid mental health problems such as anxiety (Middeldorp, Cath, Van Dyck, & Boomsma, 2005), personality difficulties (Rossi et al., 2001), or substance use disorders (Kessler, McGonagle, Zhao, & Nelson, 1994). Although participants were screened for these disorders, formal in-detail assessments could not be carried out for reasons of feasibility. The results of the present study may hence be confounded by participants' co-morbid mental health difficulties. However, the current sample accurately reflects clinical populations currently accessing NHS primary care services thus adding to the study's external validity. Moreover, childhood maltreatment occurred at a low prevalence rate and respective effects hence need to be interpreted with caution.

Second, self-report measures of interpersonal stress (i.e. daily hassles) have been considered problematic due to potential confounding influences of mood. However, gold-standard measures of interpersonal stress generation (i.e. semi-standardised interviews such as the Life Events and Difficulties Schedule [LEDS; Brown, 1989] or the UCLA Life Stress Interview [Hammen, 2005]) were unsuitable for the present study due to their extensive administration requirements. In addition, the study's use of self-report measures bears the usual validity limitations of this approach (Paulhus & Vazire, 2007). In particular, DPs' [interpersonal] daily hassles may have been either overestimated (as a result of a low threshold for reporting stressful daily hassles) or underestimated (as a result of limited motivation to complete the daily dairy). These factors could not be controlled in the present design and may bias between-group comparisons as well as within-group frequency ratings.

Last, the relatively small sample size as well as the strict selection criteria for the depressed participants resulted in limited variability in many of the obtained questionnaire measures. This might have led to a somewhat too conservative estimation of correlations which might exist in the population.

Future Research

STIs link in with a multitude of other cognitive changes that have been observed in DPs. In order to identify whether STIs might pose a cognitive vulnerability factor, future studies will have to investigate whether STIs persist into remission and/or predict subsequent depression. Furthermore, future research should investigate whether different degrees of childhood maltreatment might affect the tendency to make STIs. The degree to which the statements in the False Recognition Paradigm are suggestive of the respective traits could also be experimentally varied in order to further narrow down DPs' tendency to make STIs. Moreover, in order to tailor the paradigm more closely to the prediction of prospective interpersonal difficulties, an alternative version might investigate DPs' spontaneous inferences of others' *hostile/negative* traits which may be more relevant for inciting interpersonal stress.

Second, the study measured [interpersonal] daily hassles over a relatively short period of time. Future studies should extend observation periods within which stressful events are monitored and cross-validate findings using a set of established measures to this regard.

Third, in addition to the identification of mediational pathways, the numerous constructs which are known to contribute to the onset or maintenance of depression need to be investigated within "complex multigenerational, historical, transactional and cognitive models" (Hammen, 1992b, p. 179) using large samples and sophisticated path-modelling techniques (see e.g. Edwards & Lambert, 2007). Linked in with this suggestion, cross-sectional follow-up studies which aim to investigate mediation, might benefit from including an 'at risk' group which would be characterised by high vulnerability, but no current depression. Moreover, due to the regressional nature of mediation analyses, the identified indirect effects need to be further investigated in well-controlled experimental studies in order to establish causality.

Last, in order to further investigate the finding that DPs tended to spontaneously infer both positive and negative traits of others, future studies should investigate potential up- or downward comparisons which may further explain this effect t (e.g. 'He is successful - *unlike* me' vs. 'He is lonely - *like* me').

Theoretical Implications

The present study has some theoretical implications. For example, the observed correlational patterns between STIs and [interpersonal] daily hassles or dysfunctional attitudes were accounted for by participants' levels of depression severity. Hence, the findings support a model wherein the observed interrelations can be conceptualized as concomitants of depression, rather than vulnerability factors or consequences (cf. Barnett & Gotlib, 1988b). Whilst influences of mood on person perception have been demonstrated (e.g. Forgas & Bower, 1987; Gara et al., 1993), STIs constitute a possible mechanism which may partly explain such effects.

Clinical Implications

Although the present study did not find unequivocal evidence for mediational roles of STIs or OGM in the maintenance of depression, DPs might benefit from interventions aimed at reducing the tendency to ascribe personality traits to other individuals and/or OGM. Interventions aimed at facilitating a reflective processing style (e.g. by reducing some of depression-related cognitive thinking errors such as black-and-white thinking) may help individuals with depression to adjust their thinking and perceive others in a more accurate way (Barber & DeRubeis, 1989; Teasdale et al., 2001, 2002) thereby potentially reducing the impact of childhood maltreatment or dysfunctional attitudes on depression. Knowledge of STIs might further add to clinicians' awareness of being potentially perceived in a stereotyped way, which may facilitate clinical discussion and aid the negotiation of possible therapeutic ruptures. Regarding OGM, theorists have argued that OGM may aid cognitive avoidance of emotionally distressing memories both directly and via ruminative processes (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008; Williams, 2006). Hence, interventions aimed at reducing emotional avoidance may be beneficial in reducing both OGM and its associated constructs.

Conclusion

In summary, the present thesis has several clinical implications which translate directly into guidelines for patient care. Therapeutic protocols should

1. Continue to facilitate awareness of spontaneous / automatic information processing in depressed individuals and encourage or train strategies to override cognitive shortcuts and to consider available information comprehensively.
2. Continue to use interventions aimed at reducing affective and cognitive avoidance. Related procedures may improve depressive symptomatology - partly through associated reductions of overgeneral memory.
3. Raise clinicians' awareness of the roles of automatic person perception and overgeneral memory to facilitate respective cognitive interventions.

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Appendix

Appendix A: Questionnaires

- A1: General Information Questionnaire [GIQ].
- A2: SCID-Screening; Axis I-Short Form [SCID-I-S].
- A3: SCID-Screening; Axis II-Brief [SCID-II-B].
- A4: Beck Depression Inventory-II [BDI-II].
- A5: Beck Anxiety Inventory [BAI].
- A6: Revised Eysenck Personality Questionnaire - Short Form [EPQR-S].
- A7: Dysfunctional Attitudes Scale - Form A [DAS-A].
- A8: Daily Survey.

Appendix B: Information Sheets and Consent Form

- B1: Information Sheet (Patients).
- B2: Consent Form (Patients).
- B3: Information Sheet (Healthy Controls).
- B4: Consent Form (Healthy Controls).

Appendix C: Stimulus Material

- C1: False Recognition Paradigm: Sentences
- C2: Autobiographical Memory Task: Stimuli

Appendix A: Questionnaires

A1: General Information Questionnaire [GIQ].

GIQ

In the following, we kindly ask you to provide us with some information about yourself. Please remember that all information is completely confidential and protected by the Data Protection Act 1998. You will not be identified in our computer by name but by a number.

1	Date of Birth	____/____/_____	(DD/MM/YYYY)
2	Gender	□ Male	□ Female
3	Ethnic background	□ Caucasian (white)	□ Indian / Pakistani / Bangladeshi
		□ Pacific asian	□ Other _____
		□ Black (British, Caribbean, African, other)	
4	Is English your first language?	□ Yes	□ No _____
5	What are your current living arrangements?	□ Alone	□ With my wife / husband / partner only
		□ With my parents only	□ With my friends only
		□ With my children only	□ With my family
6	Are you currently in a long-term relationship?	□ Yes	□ No
7	What is your marital status?	□ Single	□ Divorced
		□ Married	□ Widowed

A1: General Information Questionnaire. *(continued)*

8	Do you hold any religious beliefs or belong to a religious group?	□ Yes □Roman catholic □Protestant □Hindu □Jewish □Muslim □Buddhist □Other	□ No
9	Are you currently employed?	□ Yes □Full time □Part time □Self-employed □Full-time student □Housewife / househusband □Other	□ No □On sick leave □On disability □Retired □Other
10	What is your job / course? (If unemployed / retired: What was your last job?)	_____	
11	At what age did you start / finish education?	Start: ____ years	Finish: ____ years
12	Please mark your highest educational qualification.	□ No formal qualification	□ Degree □B.A. □M.Sc.
		□ Primary	□ Postgraduate degree □PhD □Other
		□ Secondary (e.g. GCSE, O-Levels, GNVQ)	□ Other

A1: General Information Questionnaire. *(continued)*

		□ Diploma (or professional qualification)	
13	Please try to estimate your approximate annual household income.	□ Less than £5000 per year	□ £20,000 to £30,000 per year
		□ £5000 to £10,000 per year	□ £30,000 to £40,000 per year
		□ £10,000 to 15,000 per year	□ £40,000 to £50,000 per year
		□ £15,000 to £20,000 per year	□ Over £50,000 per year
14	At what age did you notice that your mood difficulties became a problem?	Onset: ____ years	
15	How is your sight?	□ Normal	□ Corrected
16	During the last 3 months, have you been using any medication, or have you been drinking or using drugs?	□ Yes	□ No

16.1 If yes, please write down any medication or drugs (including alcohol) you have taken regularly during the last 3 months (use overleaf if applicable).

Name of the medication / drug	Dosage / Amount	Since	Until

A1: General Information Questionnaire. *(continued)*

17	Have you ever received any form of psychological therapy?	□ Yes		□ No
17.1	If yes, please write down any previous courses of psychological therapy that you have received in the past (use overleaf if applicable).			
	Treatment (e.g. CBT)	Related to low mood?	Since	Until

A2: SCID-Screening; Axis I-Short Form [SCID-I-S].

SCID-I-S

These questions are about problems you may have had.

		YES	***NO***	***UNSURE***
1	Has there been any time in your life when you had five or more drinks (beer, wine, or liquor) on one occasion?			
2	Have you ever used street drugs?			
3	Have you ever gotten “hooked” on a prescribed medicine or taken a lot more of it than you were supposed to?			
4	Have you ever had a panic attack, when you suddenly felt frightened or suddenly developed a lot of physical symptoms?			
5	Were you ever afraid of going out of the house alone, being in crowds, standing in a line, or travelling on buses or trains?			
6	Is there anything that you have been afraid to do or felt uncomfortable doing in front of other people, like speaking, eating, or writing?			
7	Are there any other things that you have been especially afraid of, like flying, seeing blood, getting a shot, heights, closed places, or certain kinds of animals or insects?			
8	Have you ever been bothered by thoughts that didn’t make any sense and kept coming back to you even when you tried not to have them?			
9	Was there ever anything that you had to do over and over again and couldn’t resist doing, like washing your hands again and again, counting up to a certain number, or checking something several times to make sure that you’d done it right?			
10	In the last six months, have you been particularly nervous or anxious?			

A2: SCID-Screening; Axis I-Short Form. *(continued)*

11	Have you ever had a time when you weighed much less than other people thought you ought to weigh?			
12	Have you often had times when your eating was out of control?			

A3: SCID-Screening; Axis II-Brief [SCID-II-B].

SCID-II-B

These questions are about the kind of person you generally are, that is, how you usually have felt or behaved over the past several years. Tick the answer that best describes you. Be sure that you do not tick both "yes" and "no". To decide whether a given answer is typical of your way of looking at things, simply keep in mind what you are like *most of the time*.

		YES	***NO***	
1	Have you avoided jobs or assignments that involved having to deal with a lot of people?			A P D
2	Do you avoid getting involved with people unless you are certain they will like you?			
3	Do you find it hard to "open" even with people you are close to?			
4	Do you often worry about being criticised or rejected in social situations?			
5	Are you usually quiet when you meet new people?			
6	Do you believe that you are not as good, as smart, or as attractive as most other people?			
7	Are you afraid to try new things?			
8	Do you need a lot of advice or reassurance from others before you can make everyday decisions - like what to wear or what to order in a restaurant?			D P D
9	Do you depend on other people for handle important areas in your life such as finances, child care, living arrangements?			
10	Do you find it hard to disagree with people even when you think they are wrong?			
11	Do you find it hard to start or work on tasks where there is no one to help you?			
12	Have you often volunteered to do things that are unpleasant?			

A3: SCID-Screening; Axis II-Brief. *(continued)*

13	Do you usually feel uncomfortable when you are by yourself?		
14	When a close relationship ends, do you quickly need to find someone else you can rely on?		
15	Do you worry a lot about being left alone to take care of yourself?		
16	Do most people fail to appreciate your very special talents or accomplishments?		
17	Have people told you that you have too high an opinion of yourself?		
18	Do you think a lot about the power, fame, or recognition that will be yours someday?		
19	Do you think a lot about the perfect romance which will be yours someday?		
20	When you have a problem, do you almost always insist on seeing the top person?		
21	Do you feel it's worth spending time only with people who are special or important?		
22	Is it very important to you that people pay attention to you or admire you in some way?		
23	Do you think that it's not necessary to follow certain rules or social conventions when they get in your way?		
24	Do you often feel that there are reasons why other people should give you especially good treatment?		
25	Do you often find it necessary to step on a few toes to get what you want?		
26	Do you often have to put your needs above other peoples'?		
27	Do you often expect other people to do what you ask without question because of who you are?		
28	Do you often feel that it's not important to deal with other people's concerns or feelings?		
29	Does it burn you up when other people do well?		
30	Do you feel that others are often envious of you?		

N
P
D

31	Do you find that very few people are worth your time and attention?		
32	Have you often become frantic when you thought that someone you really care about was going to leave you?		
33	Do your relationships with people you really care about have lots of ups and downs?		
34	Have you abruptly changed your sense of who you are and where you are headed?		
35	Does your sense of who you are often change dramatically?		
36	Have there been lots of sudden changes in your goals, career plans, religious beliefs, and so on?		
37	Have you often done things impulsively?		
38	Have you tried to hurt or kill yourself or threatened to do so?		
39	Have you ever cut, burned, scratched yourself on purpose?		
40	Are you a “moody” person?		
41	Do you often feel empty inside?		
42	Do you often have temper outbursts or get so angry that you lose control?		
43	Do you hit people or throw things when you get angry?		
44	Do even little things get you very angry?		
45	Do you get suspicious of other people or feel especially spaced out when you are under a lot of stress?		

A4: Beck Depression Inventory-II [BDI-II].

BDI-II

This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling *during the past two weeks, including today*. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (changes in sleeping pattern) or Item 18 (changes in appetite).

1. Sadness
0 I do not feel sad.
1 I feel sad much of the time.
2 I am sad all of the time.
3 I am so sad or unhappy that I can't stand it.

2. Pessimism
0 I am not discouraged about my future.
1 I feel more discouraged about my future than I used to be.
2 I do not expect things to work out for me.
3 I feel my future is hopeless and will only get worse.

3. Past Failure
0 I do not feel like a failure.
1 I have failed more than I should have.
2 As I look back, I see a lot of failures.
3 I feel I am a total failure as a person.

4. Loss of Pleasure
0 I get as much pleasure as I ever did from the things I enjoy.
1 I don't enjoy things as much as I used to.
2 I get very little pleasure from the things I used to enjoy.
3 I can't get any pleasure from the things I used to enjoy.

5. Guilty Feelings
0 I don't feel particularly guilty.
1 I feel guilty over many things I have done or should have done.
2 I feel quite guilty most of the time.
3 I feel guilty all of the time.

6. Punishment Feelings
0 I don't feel I am being punished.
1 I feel I may be punished.
2 I expect to be punished.
3 I feel I am being punished.

7. Self-Dislike
0 I feel the same about myself as ever.
1 I have lost confidence in myself.
2 I am disappointed in myself.
3 I dislike myself.

8. Self-Criticalness
0 I don't criticize or blame myself more than usual.
1 I am more critical of myself than I used to be.
2 I criticize myself for all of my faults.
3 I blame myself for everything bad that happens.

9. Suicidal thoughts or Wishes
0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.

10. Crying
0 I don't cry any more than I used to.
1 I cry more than I used to.
2 I cry over every little thing.
3 I feel like crying, but I can't.

Continue on the next page, please

A4: Beck Depression Inventory. *(continued)*

11. Agitation

0 I am no more restless or wound up than usual.
1 I feel more restless or wound up than usual.
2 I am so restless or agitated that it's hard to stay still.
3 I am so restless or agitated that I have to keep moving or doing something.

12. Loss of Interest

0 I have not lost interest in other people or activities.
1 I am less interested in other people or things than before.
2 I have lost most of my interest in other people or things.
3 It's hard to get interested in anything.

13. Indecisiveness

0 I make decisions about as well as ever.
1 I find it more difficult to make decisions than usual.
2 I have much greater difficulty in making decisions than I used to.
3 I have trouble making any decisions.

14. Worthlessness

0 I do not feel I am worthless.
1 I don't consider myself as worthwhile and useful as I used to.
2 I feel more worthless as compared to other people.
3 I feel utterly worthless.

15. Loss of Energy

0 I have as much energy as ever.
1 I have less energy than I used to have.
2 I don't have enough energy to do very much.
3 I don't have enough energy to do anything.

16. Changes in Sleeping Pattern

0 I have not experienced any change in my sleeping pattern

1a I sleep somewhat more than usual
1b I sleep somewhat less than usual.

2a I sleep a lot more than usual.
2b I sleep a lot less than usual.

3a I sleep most of the day.
3b I wake up 1-2 hours early and can't get back to sleep.

17. Irritability

0 I am no more irritable than usual.
1 I am more irritable than usual.
2 I am much more irritable than usual.
3 I am irritable all the time.

18. Changes in Appetite

0 I have not experienced any change in my appetite.

1a My appetite is somewhat less than usual.
1b My appetite is somewhat greater than usual.

2a My appetite is much less than before.
2b My appetite is much greater than usual.

3a I have no appetite at all.
3b I crave food all the time.

19. Concentration Difficulty

0 I can concentrate as well as ever.
1 I can't concentrate as well as usual.
2 It's hard to keep my mind on anything for very long.
3 I find I can't concentrate on anything.

20. Tiredness or Fatigue

0 I am no more tired or fatigued than usual.
1 I get more tired or fatigued more easily than usual.
2 I am too tired or fatigued to do a lot of the things I used to do.
3 I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex

0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to be.
2 I am much less interested in sex now.
3 I have lost interest in sex completely.

A5: Beck Anxiety Inventory [BAI].

BAI

Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom *during the past month, including today*, by circling the number in the corresponding space in the column next to each symptom.

		Not at all	**Mildly (It didn't bother me much)**	**Moderately (It wasn't pleasant at times)**	**Severely (It bothered me a lot)**
1	Numbness or tingling	0	1	2	3
2	Feeling hot	0	1	2	3
3	Wobbliness in legs	0	1	2	3
4	Unable to relax	0	1	2	3
5	Fear of worst happening	0	1	2	3
6	Dizzy or lightheaded	0	1	2	3
7	Heart pounding/racing	0	1	2	3
8	Unsteady	0	1	2	3
9	Terrified or afraid	0	1	2	3
10	Nervous	0	1	2	3
11	Feeling of choking	0	1	2	3
12	Hands trembling	0	1	2	3
13	Shaky / unsteady	0	1	2	3
14	Fear of losing control	0	1	2	3
15	Difficulty in breathing	0	1	2	3
16	Fear of dying	0	1	2	3
17	Scared	0	1	2	3
18	Indigestion	0	1	2	3
19	Faint / lightheaded	0	1	2	3

A5: Beck Anxiety Inventory. *(continued)*

20	Face flushed	0	1	2	3
21	Hot/cold sweats	0	1	2	3
	Column Sum				

A6: Revised Eysenck Personality Questionnaire - Short Form [EPQR-S].

EPQR-S

This questionnaire consists of 48 questions. Please read each question carefully, and then tick the answer that best described you *before your current difficulties with low mood began*. Be sure that you do not tick both "yes" and "no". To decide whether a given answer is typical of your way of looking at things, simply keep in mind what you are like *most of the time*.

		YES	***NO***	
1	Does your mood often go up and down?			N
2	Do you take much notice of what people think?			P
3	Are you a talkative person?			E
4	If you say you will do something, do you always keep your promise no matter how inconvenient it might be?			L
5	Do you ever feel 'just miserable' for no reason?			N
6	Would being in debt worry you?			P
7	Are you rather lively?			E
8	Were you ever greedy by helping yourself to more than your share of anything?			L
9	Are you an irritable person?			N
10	Would you take drugs which may have strange or dangerous effects?			P
11	Do you enjoy meeting new people?			E
12	Have you every blamed someone for doing something you knew was really your fault?			L
13	Are your feelings easily hurt?			N
14	Do you prefer to go your own way rather than act by the rules?			P

A6: Short-form Eysenck Personality Questionnaire. *(continued)*

15	Can you usually let yourself go and enjoy yourself at a lively party?			E
16	Are *all* your habits good and desirable ones?			L
17	Do you often feel 'fed-up'?			N
18	Do good manners and cleanliness matter much to you?			P
19	Do you usually take the initiative in making new friends?			E
20	Have you ever taken anything (even a pin or button) that belonged to someone else?			L
21	Would you call yourself a nervous person?			N
22	Do you think marriage is old-fashioned and should be done away with?			P
23	Can you easily get some life into a rather dull party?			E
24	Have you ever broken or lost something belonging to someone else?			L
25	Are you a worrier?			N
26	Do you enjoy co-operating with others?			P
27	Do you tend to keep in the background on social occasions?			E
28	Does it worry you if you know there are mistakes in your work?			P
29	Have you ever said anything bad or nasty about anyone?			L
30	Would you call yourself tense or 'highly strung'?			N
31	Do you think people spend too much time safeguarding their future with savings and insurance?			P

A6: Short-form Eysenck Personality Questionnaire. *(continued)*

32	Do you like mixing with people?		
33	As a child were you ever cheeky to your parents?		
34	Do you worry too long after an embarrassing experience?		
35	Do you try not to be rude to people?		
36	Do you like plenty of bustle and excitement around you?		
37	Have you ever cheated at a game?		
38	Do you suffer from 'nerves'?		
39	Would you like other people to be afraid of you?		
40	Have you ever taken advantage of someone?		
41	Are you mostly quiet when you are with other people?		
42	Do you often feel lonely?		
43	Is it better to follow society's rules than go your own way?		
44	Do other people think of you as being very lively?		
45	Do you always practice what you preach?		
46	Are you often troubled about feelings of guilt?		
47	Do you sometimes put off until tomorrow what you ought to do today?		
48	Can you get a party going?		

E L N P E L N P L E N P E L N L E

A7: Dysfunctional Attitudes Scale - Form A [DAS-A].

DAS-A

This scale lists different attitudes and beliefs which people sometimes hold. Please read each statement carefully and decide how much you agree or disagree with what it says.

For each of the attitudes, please indicate your answer by placing a tick (✓) under the column that *best describes how you think*. Be sure to choose only one answer for each attitude. But please note that because people are different, there is no right or wrong answer to these statements.

To decide whether a given answer is typical of your way of looking at things, simply keep in mind what you are like *most of the time*.

EXAMPLE:

ATTITUDES	Totally agree	Agree very much	Slightly agree	Neutral	Disagree slightly	Disagree very much	Totally disagree
1. Most people are O.K. once you get to know them.			✓				

Look at the example above. To show how much a sentence describes your attitude, you can check any point from "totally agree" to "totally disagree". In the above example, the checkmark at "agree slightly" indicates that this statement is somewhat typical of the attitudes held by the person completing the inventory.

Remember that your answer should describe the way you think MOST OF THE TIME.

A7: Dysfunctional Attitudes Scale - Form A [DAS-A]. *(continued)*

Remember to answer each statement according to the way you think *most of the time*	**Totally agree**	**Agree very much**	**Slightly agree**	**Neutral**	**Disagree slightly**	**Disagree very much**	**Totally disagree**
1. It is difficult to be happy unless one is good looking, intelligent, rich and creative.							
2. Happiness is more a matter of my attitude toward myself than the way other people feel about me.							
3. People will probably think less of me if I make a mistake.							
4. If I do not do well all the time, people will not respect me.							
5. Taking even a small risk is foolish because the loss is likely to be a disaster.							
6. It is possible to gain another person's respect without being especially talented at anything.							
7. I cannot be happy unless most people I know admire me.							
8. If a person asks for help, it is a sign of weakness.							

A7: Dysfunctional Attitudes Scale - Form A [DAS-A]. *(continued)*

9. If I do not do as well as other people, it means I am an inferior human being.							
10. If I fail at my work, then I am a failure as a person.							
11. If you cannot do something well, there is little point in doing it at all.							
12. Making mistakes is fine because I can learn from them.							
13. If someone disagrees with me, it probably indicates he does not like me.							
14. If I fail partly, it is as bad as a complete failure.							
15. If other people know what you are really like, they will think less of you.							
16. I am nothing if a person I love doesn't love me.							
17. One can get pleasure from an activity regardless of the end result.							

A7: Dysfunctional Attitudes Scale - Form A [DAS-A]. *(continued)*

18. People should have a reasonable likelihood of success before undertaking anything.							
19. My value as a person depends greatly on what others think of me.							
20. If I don't set the highest standards for myself, I am likely to end up as a second-rate person.							
21. If I am to be worthwhile person, I must be truly outstanding in at least one major respect.							
22. People who have good ideas are more worthy than those who do not.							
23. I should be upset if I make a mistake.							
24. My own opinions of myself are more important than other's opinions of me.							
25. To be a good, moral, worthwhile person, I must help everyone who needs it.							

A7: Dysfunctional Attitudes Scale - Form A [DAS-A]. *(continued)*

26. If I ask a question, it makes me look inferior.							
27. It is awful to be disapproved of by people important to you.							
28. If you don't have other people to lean on, you are bound to be sad.							
29. I can reach important goals without slave driving myself.							
30. It is possible for a person to be scolded and not get upset.							
31. I cannot trust other people because they might be cruel to me.							
32. If others dislike you, you cannot be happy.							
33. It is best to give up your own interests in order to please other people.							
34. My happiness depends more on other people than it does on me.							

A7: Dysfunctional Attitudes Scale - Form A [DAS-A]. *(continued)*

35. I do not need the approval of other people in order to be happy.							
36. If a person avoids problems, the problems tend to go away.							
37. I can be happy even if I miss out on many of the good things in life.							
38. What other people think about me is very important.							
39. Being isolated from others is bound to lead to unhappiness.							
40. I can find happiness without being loved by another person.							

A8: Daily Survey.

7-Day-Survey

Thank you for taking the time to fill in this daily survey.

Today, my mood was / is:

Very good	Good	Neither good nor low	Somewhat low	Very low

Listed below are a number of daily hassles. Hassles are irritants that can range from minor annoyances to fairly major pressures, problems or difficulties. They can occur few or many times. We would like you to make ***3 ratings for each of the hassles which you have experienced today***.

First, please indicate *how often* each hassle occurred to you *today* (if it did not occur, just leave that row blank).

Second, please indicate for each hassle how *stressful* you felt it was (1 = not at all stressful; 2 = a little stressful; 3 = somewhat stressful; 4 = pretty stressful; 5 = very stressful) and

Third, please indicate to what extent you felt that each hassle *depended on your own behaviour*.

There are no right or wrong answers to these statements.

Daily Hassle	***How often*** **did each hassle occur to you today?**	***How stressful*** **was each hassle?** 1 = not at all; 2 = a little; 3 = somewhat; 4 = pretty; 5 = very	**How much were the respective hassles *influenced by your own behaviour*?**				
			Not at all	A little	Some-what	A lot	Totally
1. Troublesome neighbours							
2. Social obligations							
3. Inconsiderate smokers							
4. Health of a family member							
5. Concerns about owing money							
6. Someone owes you money							
7. Non family members living in your house							

A8: Daily Survey. *(continued)*

8. Problems getting along with fellow workers							
9. Customers or clients give you a hard time							
10. Don't like fellow workers							
11. Too many interruptions							
12. Unexpected company							
13. Fear of confrontation							
14. Fear of rejection							
15. Sexual problems that result from physical problems							
16. Sexual problems other than those that result from physical problems							
17. Not seeing enough people							
18. Friends or relatives too far away							
19. Problems with employees							
20. Problems on job due to being a woman or man							
21. Being exploited							
22. Problems with aging parents							
23. Problems with your children							
24. Problems with persons younger than yourself							
25. Problems with your lover							
26. Overloaded with family responsibilities							
27. Financial dealings with friends or acquaintances							
28. Problems with divorce or separation							
29. Gossip							
30. Difficulties with friends							
31. Not enough time for family							
32. Prejudice and discrimination from others							
33. Not enough money for clothing							
34. Not enough money for housing							
35. Concerns about getting credit							

A8: Daily Survey. *(continued)*

36. Concerns about money for emergencies							
37. Concerns about job security							
38. Laid-off or out of work							
39. Don't like current work duties							
40. Not enough money for basic necessities							
41. Not enough money for food							
42. Not enough money for health care							
43. Financial security							
44. Too many things to do							
45. Unchallenging work							
46. Concerns about meeting high standards							
47. Job dissatisfaction							
48. Worries about decisions to change jobs							
49. Concerns about getting ahead							
50. Not enough time for entertainment and recreation							

Note. Light grey items constitute the 'interpersonal' ('Need for Approval', NFA) and dark grey items the 'achievement' ('Performance Evaluation', PE) subscale.

Appendix B: Information Sheets and Consent Forms

B1: Information Sheet (Patients).

Institute of Psychiatry

at The Maudsley

Department of Psychology
Institute of Psychiatry
Addiction Sciences Building, 4 Windsor Walk
London, SE5 8AF

KING'S College LONDON Founded 1829

University of London

AN INVESTIGATION OF LOW MOOD AND EVERYDAY INTERACTIONS WITH OTHER PEOPLE (Ethics Reference: 11/LO/1913)

INFORMATION SHEET FOR PARTICIPANTS

You are being invited to participate in a study being conducted at the Institute of Psychiatry as part of Benjamin Boecking's DClinPsy thesis. Before you decide whether you would like to part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please do not hesitate to contact us if you have any questions.

What is the purpose of the study?

You are invited to participate in a research study which aims to identify how low mood impacts on the way we interact with other people. We are hoping that the results of this study will help us to develop more effective treatments for people suffering from emotional problems. This study starts in February 2012 and will be running for about one year.

Why have I been invited?

You have been invited to take part in this study because you are currently experiencing difficulties with low mood.

Do I have to take part?

No. Participation in the study is entirely voluntary. If you agree to take part in this study and later wish to withdraw, you may do so at any time without giving a reason. A decision to withdraw at any time or not to take part in the study will not affect the standard of care you receive. If you decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. Please note that once the study is completed and the final report has been written up you will no longer be able to withdraw your data from the study.

What will happen to me if I take part?

If you decide to take part, you will be asked to participate in **three blocks of research**:

1. First, a researcher will contact you and ask you a few brief questions to determine whether you meet previously specified criteria to participate in the study. If you do, you will be sent a **pack of questionnaires** which we will kindly ask you to complete. This will take approximately 45 mins.
2. Second, you will be invited to participate in a **research session** in which you will be asked to complete a brief interview, a brief task, and one computerized tasks. This session will last approximately 1 hr and will take place at the Institute of Psychiatry at the Maudsley.
3. Third, you will be asked to complete a **brief daily survey over the course of one week**. This survey will take approximately 5 mins/day and you will be reminded each evening by text message to complete the survey.

You will be reimbursed for your time and travel expense with *£20* which will be handed out at the end of the experimental session.

Are there any risks involved in the study?

No. Some people may find one of the questionnaires mildly distressing. To address this issue, the researcher will be able to offer a brief relaxation exercise after the research session. You can also choose not to provide the information.

What are the possible benefits of taking part?

Since the study is for research purposes only, it is unlikely that you will benefit from taking part in this study. You will, however, be informed about the purposes of the research and the underlying ideas once you have completed it.

Will my taking part in this study be kept confidential?

The results of the study are strictly confidential and are protected by the Data Protection Act. You will not be identified in our computer by name but by a unique code that will be used in all subsequent data analyses. No record will be kept linking your name with the code.
Note, however, that any disclosed information that is (i) criminal in nature, (ii) required by the law to be disclosed or (iii) relevant for maintaining your safety will be passed on to the relevant persons/authorities. If during the course of this project we obtain information that may be clinically important for your health, we will contact your GP as well as your key worker if applicable.

What will happen to the results of the research study?

Because the study is conducted for research purposes only, individual results will not be available to you. The results from this study might be published within the next 3 years. You will not be personally identified in any literature and can obtain a copy of any publications from the contact number below.

Who is organising and funding the research?

The study is funded by the Department of Psychology, Institute of Psychiatry, King's College London.

Who has reviewed the study?

This study has been affirmatively reviewed by the London City & East Research Ethics Committee (Ethics Reference: 11/LO/1913).

What if something goes wrong?

In the extremely unlikely event of you suffering any adverse effects as a consequence of your participation in this study, you may be compensated through King's College London's 'No Fault Compensation Scheme'. Please note, that in case you feel upset as a consequence of your participation in the study, you can contact us at any time on the details given below.

Contact for further information:

Chief Investigator: Dr Benjamin Boecking
Phone: 020 7848 0223
E-Mail: benjamin.boecking@kcl.ac.uk
Educational Supervisor: Dr Thorsten Barnhofer
Phone: 020 7848 5010
E-Mail: thorsten.barnhofer@kcl.ac.uk

B2: Consent Form (Patients).

Group	DP	Ptcpt		Cond	

CONSENT FORM

Title of project: "**An investigation of low mood and everyday interactions with other people"** (Ethics Reference: 11/LO/1913)

Name of researcher: Dr Benjamin Boecking

YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET AND CONSENT FORM TO KEEP AND REFER TO AT ANY TIME.

Please give your initials in all appropriate boxes

1. I have read the information sheet for the above study, have had the opportunity to ask questions, and understand what the research study involves. ☐
2. I understand that my participation is entirely voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected. ☐
3. I consent to the processing of my personal information for the purposes of this research study. I understand that such information will be treated strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998. ☐
4. I agree to take part in the above study. ☐
5. I agree for the researcher to contact my GP, should I meet diagnostic criteria for a previously unrecognized depressive disorder. ☐
6. I agree for the researcher to inform my key worker, that I am participating in the above study. ☐

Participant:		Date:		Signature:	

B2: Consent Form (Patients). *(continued)*

Chief Investigator:		Date:		Signature:	
I have explained the study to the participant and have answered all questions honestly and fully.					

1 copy for patient; 1 copy for researcher

B3: Information Sheet (Healthy Controls).

Institute of Psychiatry

at The Maudsley

Department of Psychology
Institute of Psychiatry
Addiction Sciences Building, 4 Windsor Walk
London, SE5 8AF

KING'S College LONDON Founded 1829

University of London

AN INVESTIGATION OF LOW MOOD AND EVERYDAY INTERACTIONS WITH OTHER PEOPLE (Ethics Reference: 11/LO/1913)

INFORMATION SHEET FOR PARTICIPANTS

You are being invited to participate in a study being conducted at the Institute of Psychiatry as part of Benjamin Boecking's DClinPsy thesis. Before you decide whether you would like to part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please do not hesitate to contact us if you have any questions.

What is the purpose of the study?

You are invited to participate in a research study which aims to identify how low mood impacts on the way we interact with other people. We are hoping that the results of this study will help us to develop more effective treatments for people suffering from emotional problems. This study starts in February 2012 and will be running for about one year.

Why have I been invited?

You have been invited to take part in this study because you are a healthy individual who is currently not experiencing emotional problems.

Do I have to take part?

No. Participation in the study is entirely voluntary. If you agree to take part in this study and later wish to withdraw, you may do so at any time without giving a reason. A decision to withdraw at any time or not to take part in the study will not affect the standard of care you receive. If you decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. Please note that once the study is completed and the final report has been written up you will no longer be able to withdraw your data from the study.

What will happen to me if I take part?

If you decide to take part, you will be asked to participate in **three blocks of research**:

4. First, a researcher will contact you and ask you a few brief questions to determine whether you meet previously specified criteria to participate in the study. If you do, you will be sent a **pack of questionnaires** which we will kindly ask you to complete. This will take approximately 45 mins.
5. Second, you will be invited to participate in a **research session** in which you will be asked to complete a brief interview, a brief task, and one computerized task. This session will last approximately 1 hr and will take place at the Institute of Psychiatry at the Maudsley.
6. Third, you will be asked to complete a **brief daily survey over the course of one week**. This survey will take approximately 5 mins/day and you will be reminded each evening by text message to complete the survey.

You will be reimbursed for your time and travel expense with *£20* which will be handed out at the end of the experimental session.

Are there any risks involved in the study?

No. Some people may find one of the questionnaires mildly distressing. To address this issue, the researcher will be able to offer a brief relaxation exercise after the research session. You can also choose not to provide the information.

What are the possible benefits of taking part?

Since the study is for research purposes only, it is unlikely that you will benefit from taking part in this study. You will, however, be informed about the purposes of the research and the underlying ideas once you have completed it.

Will my taking part in this study be kept confidential?

Note, however, that any disclosed information that is (i) criminal in nature, (ii) required by the law to be disclosed or (iii) relevant for maintaining your safety will be passed on to the relevant persons/authorities. If during the course of this project we obtain information that may be clinically important for your health, we will contact your GP.

What will happen to the results of the research study?

Because the study is conducted for research purposes only, individual results will not be available to you. The results from this study might be published within the next 3 years. You will not be personally identified in any literature and can obtain a copy of any publications from the contact number below.

Who is organising and funding the research?

The study is funded by the Department of Psychology, Institute of Psychiatry, King's College London.

Who has reviewed the study?

This study has been affirmatively reviewed by the London City & East Research Ethics Committee (Ethics Reference: 11/LO/1913).

What if something goes wrong?

In the extremely unlikely event of you suffering any adverse effects as a consequence of your participation in this study, you may be compensated through King's College London's 'No Fault Compensation Scheme'. Please note, that in case you feel upset as a consequence of your participation in the study, you can contact us at any time on the details given below.

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B4: Consent Form (Healthy Controls).

Group	HC	Ptcpt		Cond	

CONSENT FORM

Title of project: "**An investigation of low mood and everyday interactions with other people"** (Ethics Reference: 11/LO/1913)

Name of researcher: Dr Benjamin Boecking

YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET AND CONSENT FORM TO KEEP AND REFER TO AT ANY TIME.

Please give your initials in all appropriate boxes

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3. I consent to the processing of my personal information for the purposes of this research study. I understand that such information will be treated strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998. ☐
4. I agree to take part in the above study. ☐
5. I agree for the researcher to contact my GP, should I meet diagnostic criteria for a depressive disorder. ☐

Participant:		Date:		Signature:	

B4: Consent Form (Healthy Controls). *(continued)*

Chief Investigator:		Date:		Signature:	
I have explained the study to the participant and have answered all questions honestly and fully.					

1 copy for patient; 1 copy for researcher

Appendix C: Stimulus Material

C1: False Recognition Paradigm: Sentences.

Implicit	Sentence
Need for Approval	
Negative	
rejected	When I arrived at the party, I was told I was no longer welcome there.
heartless	I smiled when I heard my ex-partner had been diagnosed with cancer.
lonely	After my partner had died, I rarely left my apartment.
needy	Although I told myself not to, I called my partner at least twice a day.
isolated	I did not speak to anybody in months.
disliked	When I walked down the corridor, my colleagues closed their office doors.
Positive	
affectionate	I hugged my friend tightly.
loyal	I did not betray the secret that had been confided in me.
loved	I was proposed to on my holiday to Paris.
sensitive	When I saw that my friend looked upset, I asked if we should go somewhere to talk about it.
friendly	I invited my new neighbours to a party at my house.
caring	I brought my partner a bowl of hot soup when she was ill.
Performance Evaluation	
Negative	
inefficient	I took much longer than my colleagues to complete a task.
useless	I could not complete the simple request.
inept	I left the confidential documents on the train.
incompetent	I was fired after only two weeks in my new job.
unproductive	I had crossed out hardly anything off my to-do list in hours.
a failure	I had not succeeded in the tasks that had been important to me.
Positive	
successful	I thanked my superiors for my fifth promotion in as many years.
able	I completed the test without making any mistakes.
determined	I called the secretary until I was put through to the head of the company.
efficient	I did not chat when there was work to be done.
thorough	I checked every stage of the procedure twice.
ambitious	I worked long hours in order to get the promotion.
Explicit	
Negative	
insincere	I was insincere; I pretended to like people and then gossiped about them behind their backs.
intolerant	I was so intolerant that I insulted anybody who was different to me.
phony	I was phony, I told my friends what I thought they wanted to hear.
obnoxious	I was so obnoxious that I turned up my music at all hours.
narrow-minded	I was so narrow-minded that I avoided anything that disturbed my routine.
boring	I was so boring that few people wanted to spend time in my company.
dishonest	I was so dishonest that I gave false evidence in court.
impolite	I was so impolite that I did not thank my host for being invited to dinner.
humourless	I was so humourless that I had not laughed in weeks.
annoying	I was so annoying that I kept correcting my friends.
Positive	
interesting	I was interesting; I had something worthwhile to contribute to every conversation.
honest	I was honest and took the wallet to the police station.
imaginative	I was so imaginative that I painted striking pictures.
enthusiastic	I was so enthusiastic that I did a number of cartwheels on the lawn.
cheerful	I was so cheerful that I walked around with a big smile on my face.
sharp-witted	I was so sharp-witted that I spotted the shortcomings of the plan immediately.
witty	I was so witty that people turned their heads when I spoke.
friendly	I was friendly and helped the old lady across the street.
humorous	I was so humorous that my jokes made everybody laugh for minutes.
talented	I was so talented that the audience was stunned by my performance.

C1: False Recognition Paradigm: Sentences. *(continued)*

Explicit-Implicit		
	Negative	
[1]	rejected	I was so rejected that, after my latest speed-dating round, I did not receive any telephone numbers.
[2]	lonely	I was lonely; none of my friends came to visit me when I was in hospital.
	Positive	
[1]	affectionate	I was affectionate; I gently stroked my partner's cheek.
[2]	loved	I was so loved that I was thrown a huge surprise party on my birthday
	Negative	
[1]	inefficient	I was so inefficient that it took me much longer than my colleagues to complete a task.
[2]	inept	I was so inept that I knocked a tray of drinks over the guest of honour at the party.
	Positive	
[1]	successful	I was so successful that I was awarded the "employee-of-the-year" prize.
[2]	determined	I was so determined that I kept going although things got rough at work.

C2: Autobiographical Memory Task.

AUTOBIOGRAPHICAL MEMORY TASK

Instructions:

I'm interested in your memory for events that have happened in your life. I'm going to read some words to you and at the same time present the words for you on some cards. For each word, I want you to think of an event that happened to you which the word reminds you of.
The event could have happened relatively recently or a long time ago, but it should be older than one week.
The memory you recall should be a specific event - by that I mean an event that lasted less than a day, and occurred at a particular time and place. So, for example, if I said the word "good" - it would not be OK to say, "I always enjoy a good party", because that doesn't mention a specific event. But it would be OK to say "I had a good time at Jane's party two weeks ago" (because that is a specific event).
It is important to try to retrieve a different memory or event for each cue word.
Let's try some words for practice:

enjoy
friendly
bold

(Reinforce correct responses in terms of specificity, recency (> 1 week) and uniqueness, prompt until 2 correct; otherwise do)

library
newspaper
chicken

Now that we've practised we will move on to the task itself. For each cue word, you'll be given thirty seconds to come up with a memory. You may find it harder to come up with memories for some words than others, and from time to time you may find that no memory comes to mind. That is ok. However, I will always give you the whole thirty seconds to try to come up with a memory for each cue. I will record what you say and tell you when it is time to move on to the next word. Do you have any questions?

Ok, so remember, your task is to come up with a memory for each cue word. Each memory should refer to a specific event which lasted less than a day and which occurred more than one week ago. You should recall a different event for each cue word.

C2: Autobiographical Memory Task. *(continued)*

Cue words (Brittlebank et al., 1993)

Positive	**Negative**	**Neutral**
happy	guilty	grass
relieved	hopeless	gigantic
proud	failure	absence
eager	grave	wildlife
glorious	ugly	bread
sunny	worse	search

Service Evaluation Project

‘Learning about Autism’: Evaluating a Five-Day Psychoeducation Programme for Parents of Children with Autism Spectrum Disorders

Supervised by Dr Janne Karpf and Professor Patricia Howlin

Abstract

The present audit set out to evaluate the effectiveness of a 5-day psychoeducation course for parents of children with Autism Spectrum Disorders (ASD) at the Michael Rutter Centre for Children and Young People. It asked three questions:

1. Are parents satisfied with the content and structure of the parents' course *(Satisfaction Section)*?
2. Does the course successfully impact on parental stress levels and / or dysfunctional parenting strategies *(Evaluation Section)*?
3. Does the course reach a diverse parent population *(Descriptive Section)*?

Subsamples of a total of 40 parents provided pre, post, and 3-month follow-up data across three courses (run in spring 2010, autumn 2011, and spring 2011). Results indicated that, overall, parents were highly satisfied with the course. These ratings were maintained at follow-up. Pre vs. post measurements indicated that the course had a significant short-term impact on indices of (1) dysfunctional parent behaviour, (2) knowledge about ASD, and (3) parents' confidence in their parenting; some of which were maintained at follow-up. The course successfully reached deprived parents of severely impaired children with ASD. Fathers and parents from ethnic minority populations were proportionally underrepresented. Limitations of the study's findings are discussed and comprehensive service recommendations are given.

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Abbreviations

ABA	Applied Behaviour Analysis
ANOVA	One-Way Analysis of Variance
AOLPS	Arnold & O'Leary Parenting Scale
ARD	Autism Related Disorders
ASD	Autism Spectrum Disorder
CAMHS	Child and Adolescent Mental Health Services
D	Descriptive Data
E	Evaluation Data
EBPQ	Early Bird Parenting Questionnaire
GIQ	General Information Questionnaire
ICD-10	International Classification of Diseases, 10th Edition
IQ	Intelligence Quotient
M	Mean
MDT	Multidisciplinary Team
N/A	Not Applicable
NAPC	National Autism Plan for Children
NICE	National Institute for Health and Clinical Excellence
PSI	Parental Stress Index
PSI - SF	Parental Stress Index - Short Form
PSS-10	Perceived Stress Scale; 10-Item Version
RCT	Randomised Controlled Trial
S	Satisfaction Data
SCL-90-R	Symptom Checklist-90-Revised
SD	Standard Deviation
SDQ	Strengths And Difficulties Questionnaire
SIPA	Stress Index for Parents
SLAM	South London and Maudsley National Health Service Foundation Trust
STAR	Situation-Trigger-Action-Response
TA	Teaching Assistant
TEACCH	Treatment and Education of Autistic and Related Communication Handicapped Children

Parenting is the science of art of upbringing children.
Simon Soloveychik, Pedagogika dlya vseh

Introduction [Brief Literature Review]

The following brief overview partly draws from a previous service evaluation project (Marsden & Howlin, 2010) and has been extended and updated with the latest research findings where applicable.

Autism Spectrum Disorder

Autism Spectrum Disorders (ASD) are a group of developmental disorders characterised by qualitative abnormalities in communication, social interaction and imagination. These are often accompanied by restricted, stereotyped, and repetitive interests and activities (International Classification of Diseases, 10th Edition; ICD-10 [World Health Organisation, 1993]).

Recent studies have estimated the prevalence of ASD in children and adolescents in the UK to be approximately 1% (Baird et al., 2006; Baron-Cohen et al., 2009). Fourty to 50% of individuals with ASD have an intelligence quotient (IQ) within the normal range (Baird et al., 2006). Language functioning is variable and while some individuals may have normal vocabulary, grammatical knowledge, and articulation skills but poor quality of communication, others may be non-verbal (Lord & Paul, 1997).

Interventions for ASD usually focus on applied behaviour analysis (ABA), the use of visual aids to facilitate communication, and / or the training of social or adaptive skills. Although the overall evidence base for these interventions is limited, there is some evidence for efficacy with regard to improving children's cognitive abilities, language abilities, and adaptive behaviour skills (Warren et al., 2011).

Because of the heterogeneous presentation of children with ASD and the multitude of available intervention strategies (many of which lack scientific evidence [Herbert, Sharp, & Gaudiano, 2002; Howlin, 2010]) it is important that parents are able to access information about ASD and related interventions. When seeking information, parents of children with ASD have been shown mainly to rely on other parents. Moreover, compared to higher income parents, lower-income parents have been shown to use fewer information sources and support opportunities (Mackintosh, Myers, & Goin-Kochel, 2005). Qualitative research has further pointed out that parents of children with ASD often face considerable difficulties in obtaining reliable information about treatment options and how to secure them (Maurice, Mannion, Letso, & Perry, 2001).

Guidelines for Professionals and Parents of Children with ASD

Regarding assessment, diagnosis, and treatment of children with ASD, three main guidelines are currently available for professionals and parents of children with ASD: the "National Institute for Health and Clinical Excellence (NICE) guidelines (No 128) for the recognition, referral and diagnosis of children and young people on the autism spectrum" (Issued: September 2011)[1]; the "Good practice guidance on the education of children with ASD" (Jones, 2006); and the "National Autism Plan for Children (NAPC)" (National Autistic Society, 2003), each of which will be briefly described.

National Institute for Health and Clinical Excellence.

The NICE guidelines for ASD focus on the recognition, referral and diagnosis of children with ASD. However, section 1.9 ("Information and support for family and carers") recommends that parents should be provided with information regarding available support options, according to the family's needs, including "help to prepare for the future".

Good Practice Guidance on ASD.

Similarly, the Department for Education and Skills and Department of Health's Good Practice Guidance notes on the education of children with autistic spectrum disorder (Jones, 2006) emphasise the involvement of parents as an important intervention and call for the provision of clearly laid-out and accessible information about (how to access) effective interventions.

National Autism Plan for Children.

The NAPC (Chapter 4.3.2.1: "Family support/interventions", p. 42) suggests that parents should be provided with an action plan that outlines access routes to information including both websites and parent groups. Furthermore, interventions should include parent training programmes such as "More than Words" (Sussman & Lewis, 1999), "Early Bird" (Shields, 2001), or the National Autistic Society's *help*! seminars[2].

Interventions for Parents of Children with ASD

Psychoeducational approaches are the most widely used interventions in ASD (Francis, 2005). With regard to parental stress it seems of importance to provide parents with information about both the function and management of challenging behaviours with which children with ASD are likely to present (Matson & Nebel-Schwalm, 2007). For example, the Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) programme focuses on cognitive differences of individuals with (vs. without) ASD. Among other intervention strategies, it includes a parent training component and has been reported to improve children's self-help, social skills, communication, challenging behaviours, quality of life and parental stress (Ozonoff & Cathcart, 1998; Van Bourgondien, Reichle, & Schopler, 2003).

[1]http://guidance.nice.org.uk/CG128

[2]http://www.autism.org.uk/help!

The “More than Words” programme (Sussman & Lewis, 1999) entails 20 hours of small-group interventions and three home visits. Its main aim is to improve the quality of parents’ communication with their children. A formal evaluation (McConachie, Randle, Hammal, & Le Couteur, 2005) reported that, compared to a control group, the intervention improved children’s expressive vocabulary and parents’ use of positive communication strategies for children with autism (but not other ASD).

The “Early Bird” programme (Shields, 2001) was developed by the National Autistic Society and aims to improve parents’ understanding of ASD, communication skills, and management of their children’s (challenging) behaviours. However, no formal evaluation of the programme has been published to date.

A randomised controlled trial (RCT) (Tonge et al., 2006) demonstrated that a 20-week parent education programme (which was combined with a behaviour management or counselling component) significantly improved parental mental health at 6-month follow-up.

Unlike these rather extensive intervention programmes, the National Autistic Society’s - *help*! programme comprises a relatively low-threshold “series of one-day family support seminars (which provide) information and advice to families of children and young people affected by autism”. Aims include, among others, to develop an understanding of autism; to gain awareness of the sensory needs of children with autism; to discuss the experiences of getting a diagnosis; to explore practical ideas for developing communication strategies; to clarify support that families may be entitled to and ways to access this; and to examine strategies for managing difficult feelings.

In addition, a recent RCT (Roberts et al., 2011) showed that a small-group intervention for children combined with small-group support and training for parents improved children’s social and communication skills as well as parents’ perception of competence and quality of life relative to an individualised home-based programme or wait-list. Also, parent training plus medication has been shown to be more effective than medication alone in treating challenging behaviours of children with ASD (Aman et al., 2009).

Overall, there is some evidence that parent-focused interventions may improve both parental mental health and children’s ASD-related symptomatology. However, it is important to note that large, well-controlled studies are still lacking and the heterogeneity of ASD may limit interventions effectiveness (Francis, 2005).

Summary and Service Evaluation Rationale

Parents are often faced with the difficulty of accessing reliable information about ASD, empirically supported treatment options, and how to manage challenging behaviour. This information can be provided within the framework of psychoeducation groups. Ideally these should also reach low-income parents of children with ASD whose need has been identified to be especially high. While some intensive programmes have demonstrated the efficacy of parent-focused interventions for both parent and child-related outcome measures, data on less intensive interventions is sparse.

Within the South London and Maudsley National Health Service Foundation Trust (SLaM), a parents' course for parents of children with ASD is routinely run by the Autism Related Disorders (ARD) Team at the Michael Rutter Centre for Children and Young People. Whilst a previous audit of this programme evaluated an early three-day version of the programme using three standardised outcome measures (Marsden & Howlin, 2010), the present audit sought to expand its findings, by (1) evaluating an extended five-day programme and its impact on both child and parent behaviours at pre, post and 3-month follow-up; and (2) obtaining both non-standardised qualitative (*satisfaction section*), standardised quantitative (*evaluation section*), and additional descriptive data (*descriptive section*).

Method

Study Design

Data for the present analyses were acquired across three courses that took place in spring 2010, autumn 2011, and spring 2011. Because of routine data collection procedures at the Michael Rutter Centre for Children and Young People, *satisfaction data* were available for all three courses, whereas *evaluation* and *descriptive data* were collected for two courses only (Autumn2010, and Spring2011). Satisfaction data were obtained (1) immediately after each course, asking retrospectively about each session, and (2) at approx. 3-month follow-up. Evaluation data were obtained at pre, post and approx. 3-month follow-up. Descriptive data were obtained once at the beginning of each course.

Description of Parents' Course

Each parents' course was held over a 5-day-period and consisted of eight sessions: (1) Genetics; (2) Understanding ASD; (3) Welfare Rights and Benefits; (4) Education Rights and Statementing; (5) Transition; (6) Communication; (7) Behaviour Management; and (8) ASD, Puberty and Sexuality. Before the first session began, parents were given the opportunity to introduce themselves, their child and their child's diagnosis.

Session 1: Genetics.

This session was delivered by Patrick Bolton, consultant psychiatrist on the ARD Team. It gave an overview of genetic foundations of ASD and informed parents about biological processes that are involved in the development auf ASD.

Session 2: Understanding ASD.

This session was delivered by Jenny Ronayne, Child Mental Health Worker on the ARD Team. First, it aimed to give an overview of ASD looking at (1) the triad of impairments (communication, social interaction, and repetitive / stereotyped behaviour), (2) theory of mind, (3) central coherence theory, and (4) sensory issues in children with ASD. Second, the session focused on the impact of these factors impact on the child's cognitive processing, social understanding, communication and behaviour. Last, the session briefly discussed issues revolving around anxiety and anger, challenging behaviours, and typical areas of need.

Session 3: Welfare rights and benefits.

This session was delivered by Roger Weissman, Social Services Manager. The aim of this session was to provide an overview of the range of social care services and benefits that might be available to a child on the autism spectrum, including: (1) welfare benefits, (2) local authority services, (3) resources from the third sector, and (4) independent / voluntary community supports.

Session 4: Education, rights and statementing.

This session was delivered by Sue Goode, Consultant Clinical Psychologist. This flexible session aimed to provide relevant information to parents for the respective stages their children are at and to look at potential future needs. The session aimed to help parents make informed decisions about (1) education, (2) statementing, and (3) choice of school (taking level of provision for special needs into consideration). It further aimed to inform parents about their and their children's rights for appropriate support in (mainstream and special) school and the duties of the local education authority.

Session 5: Transition.

This session was delivered by Jenny Ronayne. It focused on difficulties that individuals with ASD typically experience at times of transition and how to manage and plan for these. Major times include transitions from home to school, nursery to primary school, primary to secondary school, or secondary school to college or university. The session also covered transitions which occur on a daily basis, e.g. moving from one activity or environment to another.

Session 6: Communication.

For this session, parents were encouraged to ask their child's teacher and/or teaching assistant (TA) to attend. The session was run by two speech and language therapists and looked at ways in which the child can communicate effectively across both school and home environments. The session further focused on differences in language development between individuals with and without ASD and strategies to improve communication to effectively deliver the school curriculum.

Session 7: Behaviour management.

This session was led by Janne Karpf, Clinical Psychologist and Jenny Ronayne. The session looked at (1) typical causes of difficult or challenging behaviours and (2) the *STAR* (Situation-Trigger-Action-Response) model of analysing behaviour. Parents presented a specific problematic behaviour and, using the *STAR* model, come to an understanding of why this behaviour might have arisen and what strategies might help to avoid, eliminate or manage the behaviour.

Session 8: ASD, puberty and sexuality.

This session was delivered by Jenny Ronayne. The session looked at differences in typical social development in children and adolescents with and without ASD. It was discussed how these differences can impact on the child's / adolescent's sexual understanding and behaviour. Theory of mind, central coherence theory and sensory issues were revisited in relation to sexual behaviours. Parents were further introduced to resources which can help in teaching their children about sexual matters and were encouraged to discuss particular difficulties which they might have been experiencing.

Participants

A total of 40 participants was included in the analysis (*Spring2010*: *n* = 19, *Autumn2010*: *n* = 11, *Spring2011*: *n* = 10). However, because of (1) the voluntary nature of participation in the evaluation, (2) fluctuating participant rates across different sessions, and (3) the three different sections of investigation ([i] satisfaction, [ii] evaluation, and [iii] description), availability of data varied. See Table 1 for an overview of collected data.

Table 1. Overview of available/collected data for the three parents' courses.

Time point	Pre			Post		Follow-up	
Course	*S*	*E*	*D*	*S*	*E*	*S*	*E*
Spring 2010 (*n* = 19)	N/A	N/A	N/A	✓ (*n* = 19)	N/A	✓ (*N* = 7)	N/A
Autumn 2010 (*n* = 11)	N/A	✓ (*n* = 11)	✓ (*n* = 11)	✓ (*n* = 8)	✓ (*n* = 5)	✓ (*n* = 5)	✓ (*n* = 5)
Spring 2011 (*n* = 10)	N/A	✓ (*n* = 8)	✓ (*n* = 8)	✓ (*n* = 10)	✓ (*n* = 8)	✓ (*n* = 4)	✓ (*n* = 4)
Total (*N* = 40)	N/A	✓ (*N* = 19)	✓ (*N* = 19)	✓ (*N* = 37)	✓ (*N* = 13)	✓ (*N* = 16)	✓ (*N* = 9)

Note. *Satisfaction data* comprised two non-standardised measures that were administered at post and follow-up. *Evaluation data* comprised three standardised measures (Perceived Stress Scale; Early Bird Parent Questionnaire; Arnold & O'Leary Parenting Scale) that were administered at pre, post and follow-up. *Descriptive data* comprised both a non-standardised (Sociodemographic Questionnaire) and a standardised measure (Strengths-and-Difficulties Questionnaire) that were administered at pre. S = satisfaction data; E = evaluation data; D = descriptive data; N/A = not applicable; ✓ = Data collected at respective timepoint.

Measures

Satisfaction section.

Parents' satisfaction was measured retrospectively with a non-standardised questionnaire which assessed perceived (1) relevance, (2) informativeness, (3) clarity of presentation, (4) worthiness of future repetition, and (5) satisfaction with allowed time for each session[3]. In addition, participants were given the opportunity to provide qualitative feedback for each session as well as the overall course.

At follow-up, participants were sent a non-standardised questionnaire that focused on their general satisfaction with the course and the specific benefit of particular sessions for their day-to-day lives[4].

Items were rated on a 5-point scale from 1 = *not at all* to 5 = *very*. Items asking for satisfaction with allowed time were rated on a 5-point scale from 1 = *too short* via 3 = *just right* to 5 = *too long.*

Evaluation section.

For the evaluation section of the course, three standardised questionnaires were administered which focused both on parent and parent-rated children's characteristics.

Perceived stress.

Parents' perceived stress was measured using the Perceived Stress Scale (10-item version; PSS-10; Cohen, 1988; Cohen, Kamarck, & Mermelstein, 1983). The scale consisted of 10 items which covered the past month of participants' lives and measured the "degree to which situations in one's life are appraised as stressful" (Cohen et al., 1983, p. 385). Items were answered on a 5-point scale from 0 = *never* to 4 = *very often*. Six items were phrased negatively so that agreement indicated stress while the remaining four items were phrased positively and their scoring was to be reversed. For the purpose of analyses, sum scores were computed with higher scores indicating higher levels of stress. In the present sample, internal consistency of this measure was satisfactory (Cronbach's $\alpha = .79$).

[3]Session (X): (1) The information in this session was relevant to me; (2) The information has added to my understanding of ASD and communication needs; (3) The information was presented in a clear manner; (4) The session is worth repeating in future courses, and (5) The time allowed for this session's topic was […].

[4](1) The information in the course increased my understanding of Autism Spectrum Disorders and of my child; (2) I find the strategies that were discussed in the course helpful to manage my child's behaviour; (3) I feel I am still benefiting from having attended the course; (4) The course was informative on available support and related issues; (5) I think other parents would benefit from attending this course; (6) I think teachers and other school staff should attend this course; (7) Now that I have attended the course, I feel that my child is coping better; (8) Attending the course has made it easier to prepare my child for school transition; (9) Attending the course has provided me with valuable advice on my child's sex education; (10) Attending the course has provided me with valuable advice on how to work together with my child's teachers / school to support my child; and (11) Five days is the right length of time for this course.

Dysfunctional parental discipline practices.

Parents' dysfunctional discipline practices were measured by the Arnold and O'Leary Parenting Scale (AOLPS; Arnold, O'Leary, Wolff, & Acker, 1993). The scale consisted of 30 items each of which addressed a specific aspect of parental discipline practice. Sixteen items were phrased negatively so that agreement indicated dysfunctional parenting. For the remaining fourteen items, scoring was reversed. Each item was anchored between two alternative responses which were graded with a 7-point scale indicating the respective tendency towards each alternative. Scaling for each item ranged from 1 = *most effective* to 7 = *least effective* with higher scores indicating higher levels of dysfunctionality. Scores were summarised into four index scores ([1] Total Score [Range 30 - 210]; *Subscales*: [2] Laxness [Range 11 - 77]; [3] Overreactivity [Range 10 - 70]; and [4] Verbosity [Range 7 - 49])[5]. For the purpose of analyses, sum scores were computed with higher scores indicating higher levels of ineffectiveness. In the present sample, internal consistency varied across subscales, but was overall satisfactory (Cronbach's α [Total] = .67[6]).

Dysfunctional parenting strategies.

In addition, problematic parenting factors that were considered likely to be sensitive to parent-focused interventions were measured by the Early Bird Parenting Questionnaire (EBPQ) (Anderson, 2006). The scale comprised 27 items each describing a specific aspect of parental behaviour. Items were answered on a 6-point scale from 1 = *not true at all* to 6 = *definitely true*. Twenty-three items were phrased positively and had been scored so that higher numbers indicated less effective behavioural strategies. The remaining four items were phrased negatively and scoring had been reversed accordingly. Scores were summarised into eight index scores ([1] Total Score [Range 27 - 162]; *Subscales*: [2] Knowledge about Autism [Range 3 - 18]; [3] Communication [Range 5 - 30]; [4] Play [Range 3 - 18]; [5] Behaviour Management [Range 6 - 36]; [6] Confidence [Range 3 - 18]; [7] Stress [Range 3 - 18], and [8] Family Functioning [Range 4 - 24])[7]. For the purpose of analyses, sum scores were computed with higher scores indicating higher levels of

[5] *Laxness* assesses parents' permissive discipline strategies, i.e. ways in which parents give in, allow rules to go unenforced, or provide positive consequences for misbehaviour. *Overreactivity* assesses displays of anger, meanness, and irritability, and *Verbosity* assesses lengthy verbal responses and a reliance on talking even when it is ineffective (Arnold, O'Leary, Wolff, & Acker, 1993).

[6] Laxness = .74; Overreactivity = .62; Verbosity = .48

[7] Paraphrasing scale descriptions as outlined by Anderson et al. (2006), *Knowledge about Autism* assesses parents' understanding of the ways in which children with autism are different from other children. *Communication* assesses ways in which parents might increase their children's communication, such as matching language to the child's level, and using gestures and facial expressions to encourage turn taking. *Play* assesses parents' use of play to interact with their children and to teach them social interaction skills such as turn-taking and joint attention. *Behaviour Management* assesses the degree to which parents are equipped with strategies to manage their children's behaviour. *Confidence* assesses future perspective, optimism, and confidence in parenting. *Stress* assesses aspects of parental stress such as perception of help available, the degree to which autism dominates their life, and long-term responsibilities. Last, *Family Functioning* assesses how well a given household is running and to what degree the needs of all family members are met. Note that the original publication remains unpublished due to errors in its scoring section. The present study uses an amended scoring key (see Appendix G, p.206).

problematic parenting. In the present sample, internal consistency varied across subscales, but was overall satisfactory (Cronbach's α [Total] = .88[8]).

Descriptive section.

Sociodemographic information.

Sociodemographic information was measured using a General Information Questionnaire (GIQ). Items covered parents' age, gender, ethnicity, marital status, employment status, level of education and annual household income. In addition, the parents' children's current age, age at diagnosis and gender were recorded.

Children's dysfunctional behaviours.

Children's dysfunctional behaviours were measured by the parent-rated Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997, 2001). The SDQ was a 25-item screening inventory which measured the occurrence of particular behaviours on a 3-point scale from 0 = *not true* to 2 = *certainly true*.

Fifteen items were phrased negatively so that agreement indicated dysfunctional behaviours. Five items were phrased positively and their scoring was subsequently reversed. Five items - which constitute the Pro-Social Behaviour subscale - were phrased positively and agreement indicated functional behaviours. Scores were summarised into six index scores; one total score which ranged from 0 to 40[9] ([1] Total Difficulties) and five subscale scores which each ranged from 0 to 10 ([2] Emotional Symptoms; [3] Conduct Problems; [4] Hyperactivity; [5] Peer Problems, and [6] Prosocial Behaviour) in children aged 3-4 or 4-16.

In addition, the measure contained an Impact supplement that assessed parents' perceptions about their children's problems and, if applicable, chronicity, distress, social impairment, and burden to the family. For the purpose of analyses, sum scores were computed with higher scores indicating higher levels of problematic behaviour. Note that for prosocial behaviour, higher scores indicated *lower* levels of problematic behaviour.

In the present sample, internal consistency varied across subscales, but was overall satisfactory (Total Cronbach's α = .64[10]).

In addition, see Table 2 for a guide for interpretation of scores[11].

[8]Knowledge about Autism = .78; Communication = .76; Play = .79; Behaviour Management = .65; Confidence = .41; Stress = .46; Family Functioning = .60

[9]The total score is generated by summing all subscores except the prosocial score.

[10]Emotional Symptoms = .88; Conduct Problems = .70; Hyperactivity = .54; Peer Problems = .47; Pro-Social Behaviour = .67

[11]http://www.sdqinfo.org/py/doc/c0.py

Table 2. Cut-off scores for parent-reported SDQ scores.

	Strengths and Difficulties Questionnaire [SDQ]					
Parent completed	Normal		Borderline		Abnormal	
Scale	*Range*		*Range*		*Range*	
Total Difficulties	0	13	14	16	17	40
Emotional Symptoms	0	3	4		5	10
Conduct Problems	0	2	3		4	10
Hyperactivity	0	5	6		7	10
Peer Problems	0	2	3		4	10
Prosocial Behaviour	6	10	5		0	4

Note. Higher scores reflect a higher degree of problematic behaviour. For the Pro-Social Behaviour scale, scoring is reversed and higher scores reflect a lower degree of problematic behaviour.

Results

Satisfaction Section

The first set of analyses focused on parents' satisfaction with the parents' course at post and follow-up.

Participant satisfaction: post.

Participant satisfaction data is reported for each of the five satisfaction items ([1] Relevance; [2] Informativeness; [3] Clarity of presentation; [4] Worthiness of future repetition; and [5] Satisfaction with allowed time), split by session[12].

In the following, each satisfaction item is described by three indices: First, dot plots indicate participants' mean satisfaction ratings for each session. Second, percentages of participants who rated a session on the top two scoring points (i.e. either "very [relevant]" or "[relevant]") are reported for each session. Third, the mean of these percentages is reported as an index of participants' satisfaction on each satisfaction item across all sessions. For numerical data, see Appendix A.

[12]One-way analyses of variance (ANOVAs) indicated no difference across courses for all satisfaction ratings except "satisfaction with allowed time for each session". Here, participants in the Spring 2010 course rated the available time on average as having being "too short" whereas participants in the Autumn 2010 course rated the available time on average as having been "just right". Participants in the Spring 2011 course ranged in between (*Spring2010*: *M* [*SD*] = 2.73 [0.39]; *Autumn2010*: *M* [*SD*] = 3.34 [0.52]; *Spring2011*: *M* [*SD*] = 3.05 [0.34]; $F[2, 34] = 6.69$; $p < .01$).

Relevance.

See Figure 1 for an overview of participants' mean relevance ratings per session.

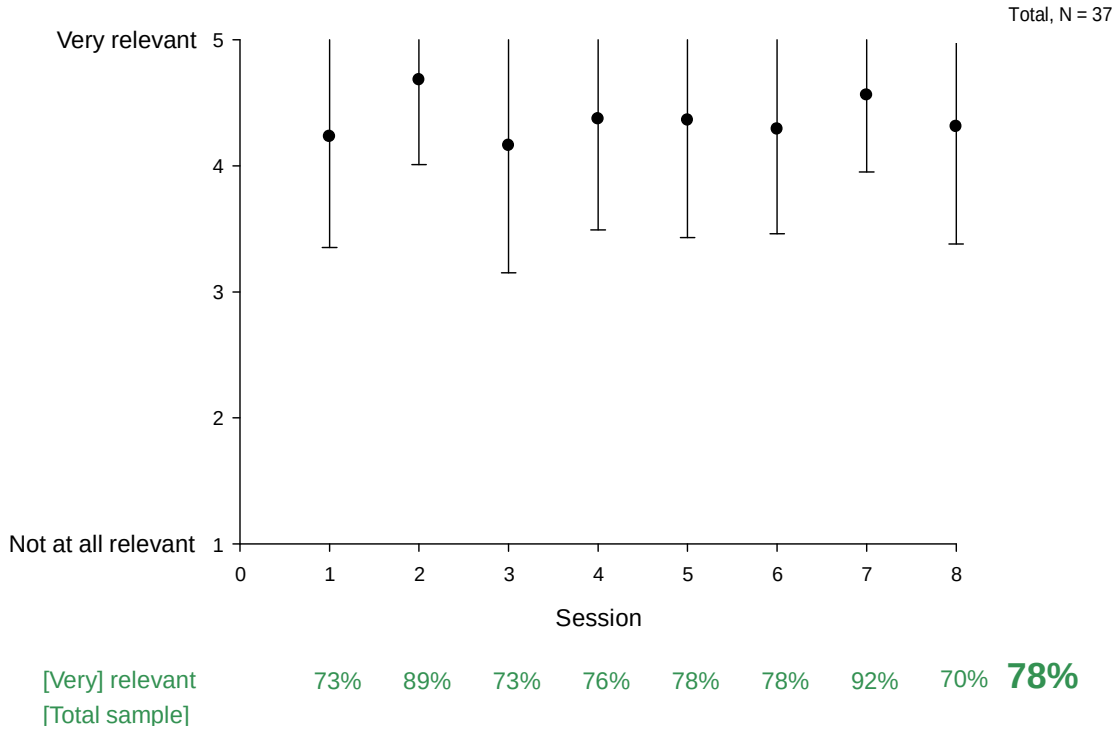

Figure 1. Participants' relevance ratings per session
("The information in this session was relevant to me"). Session indices indicate the percentage of participants who rated each session as "very relevant" or "relevant" (e.g. 73% of participants considered Session 1 to be "very relevant" or "relevant"). The bold index in the lower right corner indicates the percentage of participants who considered the course in its entirety as "very relevant" or "relevant".

Informativeness.

See Figure 2 for an overview of participants' mean informativeness ratings per session.

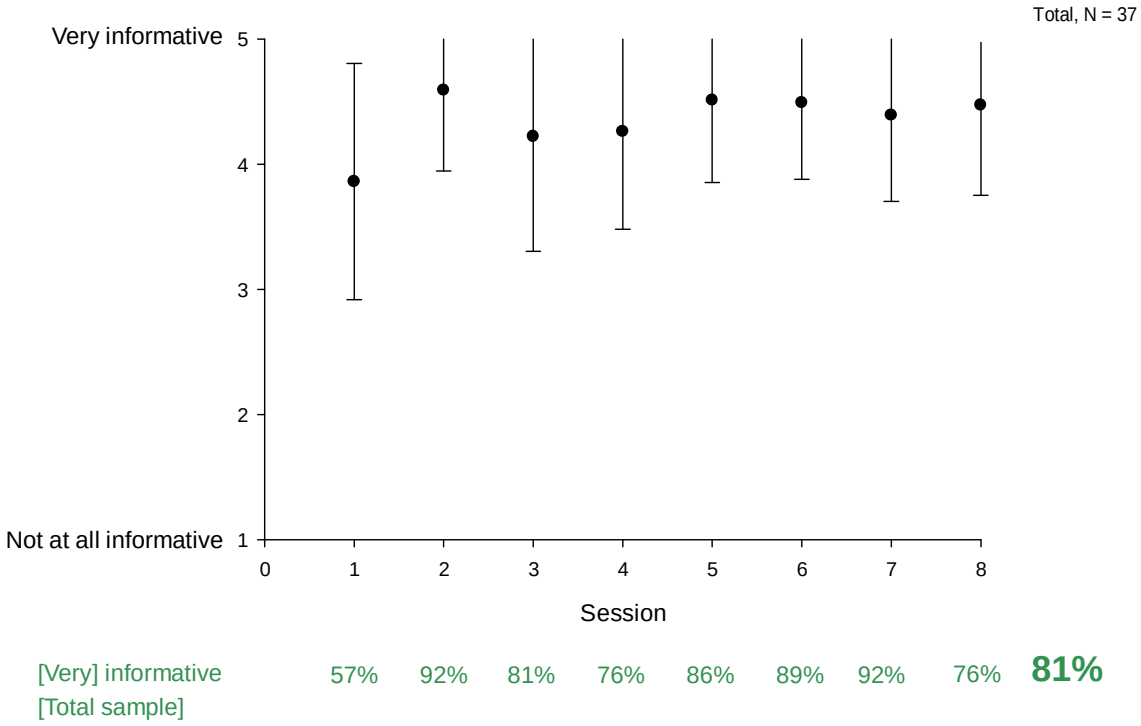

Figure 2. Participants' informativeness ratings per session ("The information has added to my understanding of ASD and communication needs"). Session indices indicate the percentage of participants who rated each session as "very informative" or "informative" (e.g. 57% of participants considered Session 1 to be "very informative" or "informative"). The bold index in the lower right corner indicates the percentage of participants who considered the course in its entirety as "very informative" or "informative".

Clarity of presentation.

See Figure 3 for an overview of participants' mean ratings of clarity of presentation per session.

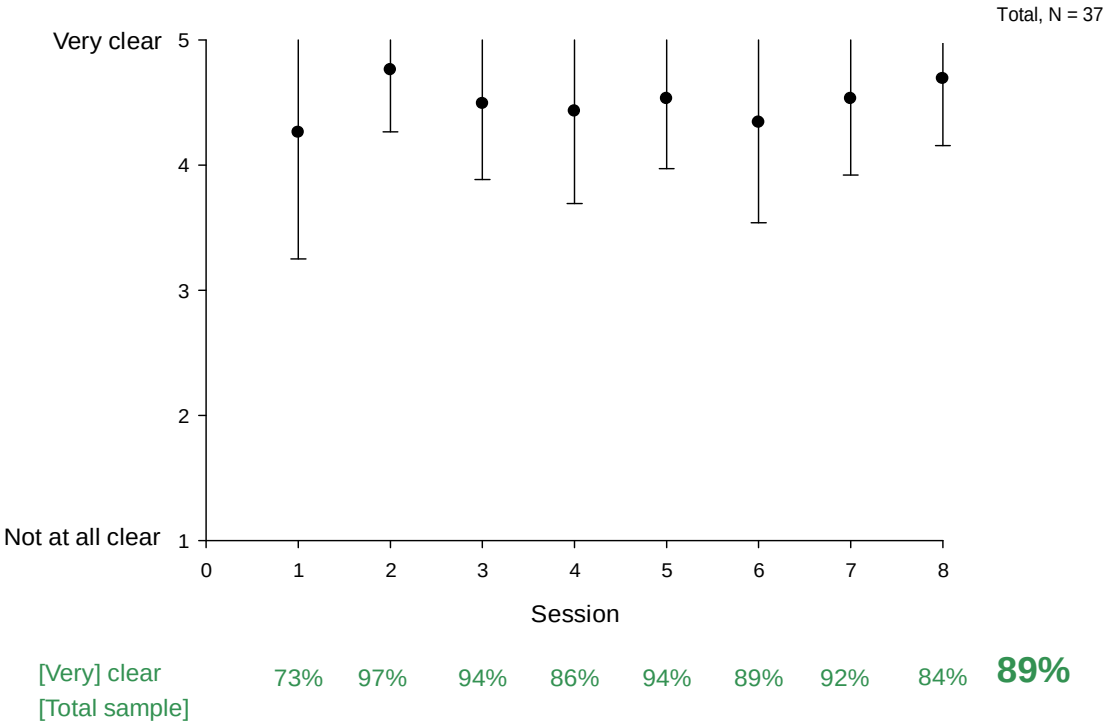

Figure 3. Participants' clarity-of-presentation ratings per session ("The information was presented in a clear manner"). Session indices indicate the percentage of participants who rated each session as "very clear" or "clear" (e.g. 73% of participants considered Session 1 to be "very clear" or "clear"). The bold index in the lower right corner indicates the percentage of participants who considered the course in its entirety as "very clear" or "clear".

Worthiness of future repetition.

See Figure 4 for an overview of participants' mean ratings of worthiness of future repetition per session.

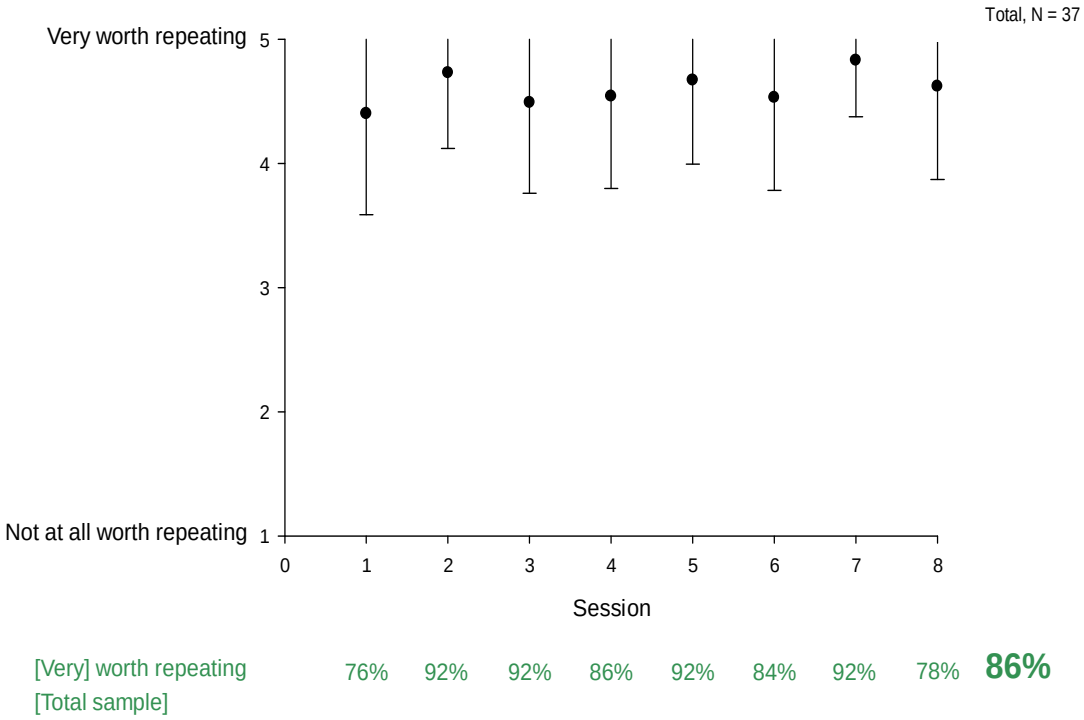

Figure 4. Participants' worthiness-of-future-repetition ratings per session ("The session is worth repeating in future courses"). Session indices indicate the percentage of participants who rated each session as "very worth repeating" or "worth repeating" (e.g. 76% of participants considered Session 1 to be "very worth repeating" or "worth repeating"). The bold index in the lower right corner indicates the percentage of participants who considered the course in its entirety as "very much worth repeating" or "worth repeating".

Overall satisfaction.

Figure 5 illustrates participants' mean overall satisfaction with each session.

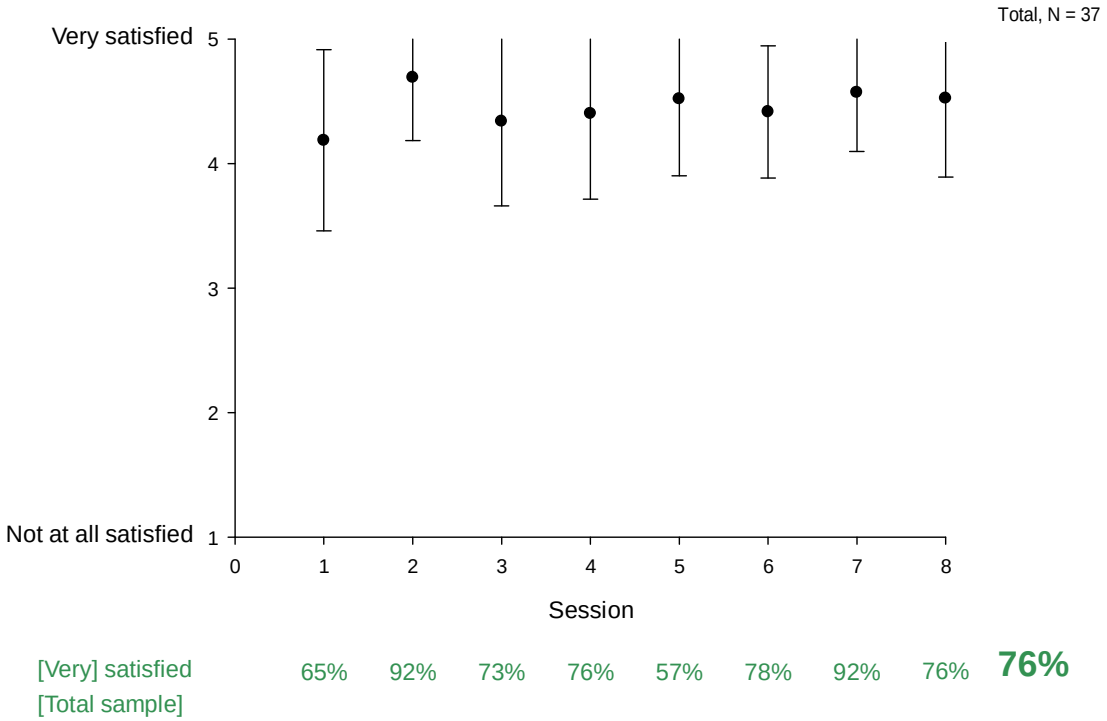

Figure 5. Participants' overall satisfaction ratings per session.

Session indices indicate the percentage of participants who were, on average, "very much satisfied" or "satisfied" with each session[13]. The bold index in the lower right corner indicates the percentage of participants who were "very satisfied" or "satisfied" with the course in its entirety.

[13]Indices were calculated by averaging satisfaction ratings across items 1 - 4 for each session.

Satisfaction with allowed time for each session.

See Figure 6 for an overview of participants' ratings of their satisfaction with allowed time for each session.

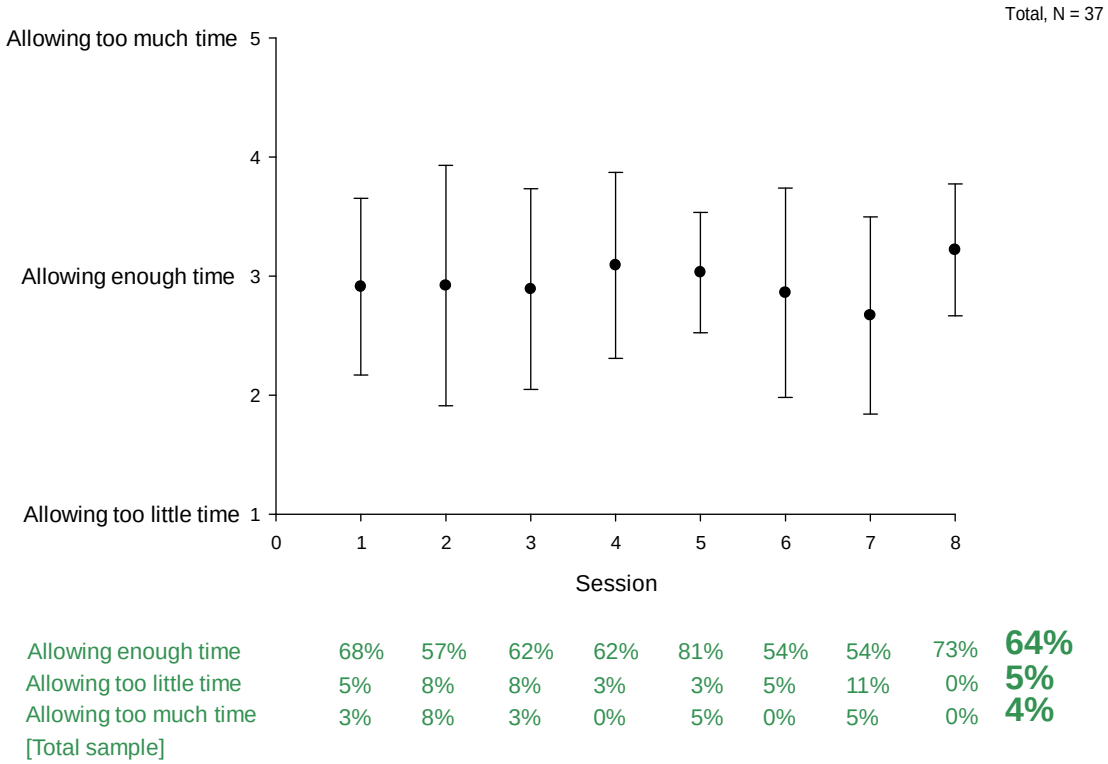

Figure 6. Participants' ratings of their satisfaction with the allowed time per session ("The time allowed for this session's topic was […]"). Session indices indicate the percentage of participants who rated each session as allowing "enough", "too little", and "too much" time. The bold indices in the lower right corner indicate the percentage of participants who considered the course in its entirety as being of just the right length, too short, or too long respectively.

In summary, ratings indicated that participants were highly satisfied with the course. Participating parents considered the course topics as (highly) relevant and stated that useful information was conveyed in a comprehensible and clear manner. With regard to timings of the single sessions, most participants felt that the current structure of the parents' course should be upheld.

Qualitative feedback: post.

In addition, parents provided open feedback for each session and the general programme immediately after each course had finished. Overall, this feedback reflected parents' high overall satisfaction with the course. Suggestions included (1) to instantiate improved time management within sessions and to react more flexibly to time management issues (to provide parents with enough time for discussion and to not create "rushedness"); (2) to allocate more time to practical, "hands-on" group-work; (3) to offer a brief follow-up course that could address potential difficulties that arise from trying to implement the given information; and (4) to broaden the course's approach towards information for children of different age groups (rather than focusing predominantly on nursery-aged children). See Appendix B1 for a listing of parents' comments (divided into "positive" comments, "negative" comments, and "suggestions").

Participant satisfaction: follow-up.

Sixteen participants provided satisfaction ratings at follow-up. See Table 3 for mean ratings for each question, and the percentage of participants who rated a question on the top two scoring points (i.e. either "very much true" or "very true").

Table 3. Participants' satisfaction data at follow-up.

	Total sample (*N* = 16)			
Question	*M*	*SD*	Percentage	
The information in the course increased my understanding of Autism Spectrum Disorders and of my child.	4.69	.70	88%	
I find the strategies that were discussed in the course helpful to manage my child's behaviour.	4.00	.82	69%	
I feel I am still benefiting from having attended the course.	4.13	.81	75%	
The course was informative on available support and related issues.	3.94	.77	69%	
I think other parents would benefit from attending this course.	4.94	.25	100%	
I think teachers and other school staff should attend this course.	5.00	.00	100%	
Now that I have attended the course, I feel that my child is coping better.	3.44	.63	50%	
Attending the course has made it easier to prepare my child for school transition.	3.67	.98	56%	
Attending the course has provided me with valuable advice on my child's sex education.	3.56	.89	44%	
Attending the course has provided me with valuable advice on how to work together with my child's teachers / school to support my child.	3.75	.93	56%	
Five days is the right length of time for this course	2.94	1.00	Enough time	63%
			Too little time	13%
			Too much time	16%

Note. Percentages indicate the proportion of participants who rated each question as "very much true" or "very true". For the last question, percentages indicate the proportion of participants who rated the course as having allowed "enough", "too little", or "too much" time.

In conclusion, follow-up satisfaction data indicated that parents were highly satisfied with the setup and content of the course, although some qualifications applied in terms of the courses' immediate practical implications.

Qualitative feedback: follow-up.

Analogous to the immediate feedback sheets, parents also provided open feedback at follow-up. Feedback revealed parents' continuing high hindsight satisfaction with the course and emphasised the suggestion of a potential follow-up "refresher" course. See Appendix B2 for verbatim feedback.

Evaluation Section

In the evaluation section of the study, data from the Autum2010 and Spring2011 courses were pooled to investigate (1) the courses' immediate impact on parents' levels of stress and parenting abilities and (2) the maintenance of potential effects at follow-up. Analyses were computed using paired-samples t-tests. For numerical data, see Appendix C.

Immediate impact.

Perceived stress.

The courses did not have an effect on parents' levels of perceived stress (t[13] = -.17).

Dysfunctional parental discipline practices.

On the AOLPS, parents' "*Verbosity"* scores decreased significantly from pre to post (t[13] = 3.08, p < .01) (see Figure 7). In contrast, there were no differences in the "*Total"* (t[13] = .77), "*Laxness"* (t[13] = .17) or *"Overreactivity"* (t[13] = -.06) scores.

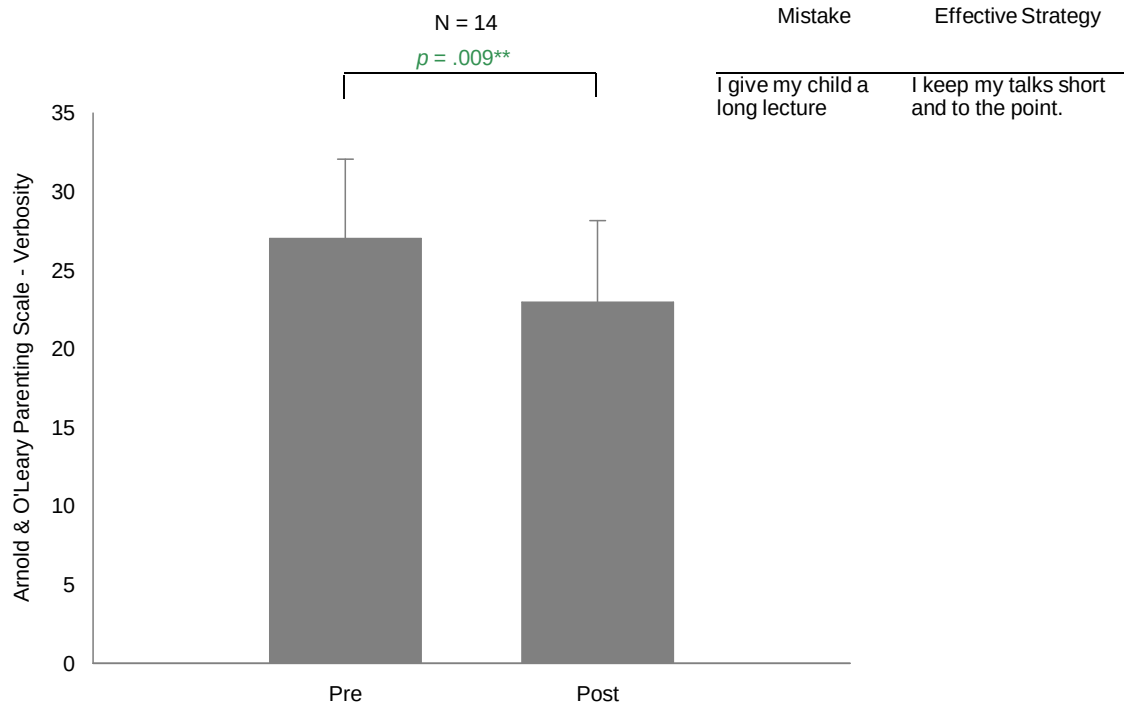

Figure 7. Pre to post changes on the AOLPS "*Verbosity*" index.
Higher scores indicate a higher degree of pathology. In the top right corner, an example item is presented.
** = p <.01

Dysfunctional parenting strategies.

On the EBPQ, pre vs. post scores differed significantly on the *"Total"* (t[12] = 5.01, p < .001), *"Knowledge"* (t[12] = 3.99, p < .01), "*Play"* (t[12] = 3.32, p < .01), "*Behaviour Management"* (t[12] = 5.53, p < .01), and *"Confidence"* (t[12] = 2.25, p < .05) indices. See Figures 8 - 11 for illustrations.

There were no significant differences on the *"Communication"* (t[12] = .99), *"Stress"* (t[12] = -.72), and *"Family Functioning"* (t[12] = -.12) ratings.

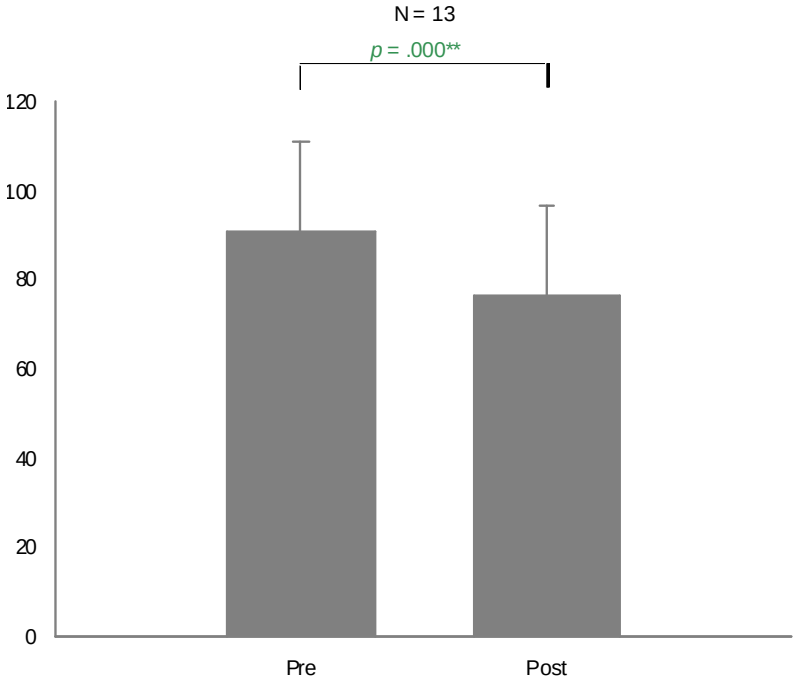

Figure 8. Pre to post changes on the EBPQ "*Total*" score. Higher scores indicate a higher degree of pathology.

** = p <.01

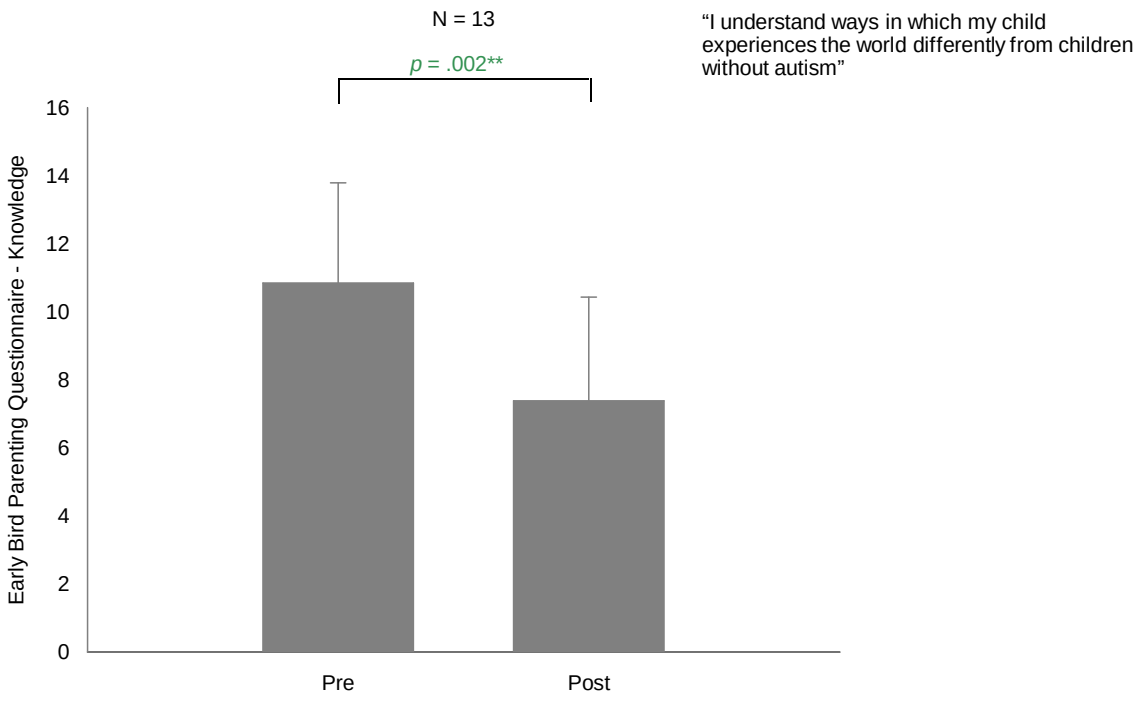

Figure 9. Pre to post changes on the EBPQ "*Knowledge*" index.

Higher scores indicate a higher degree of pathology. In the top right corner, an example item is presented.

** = p <.01

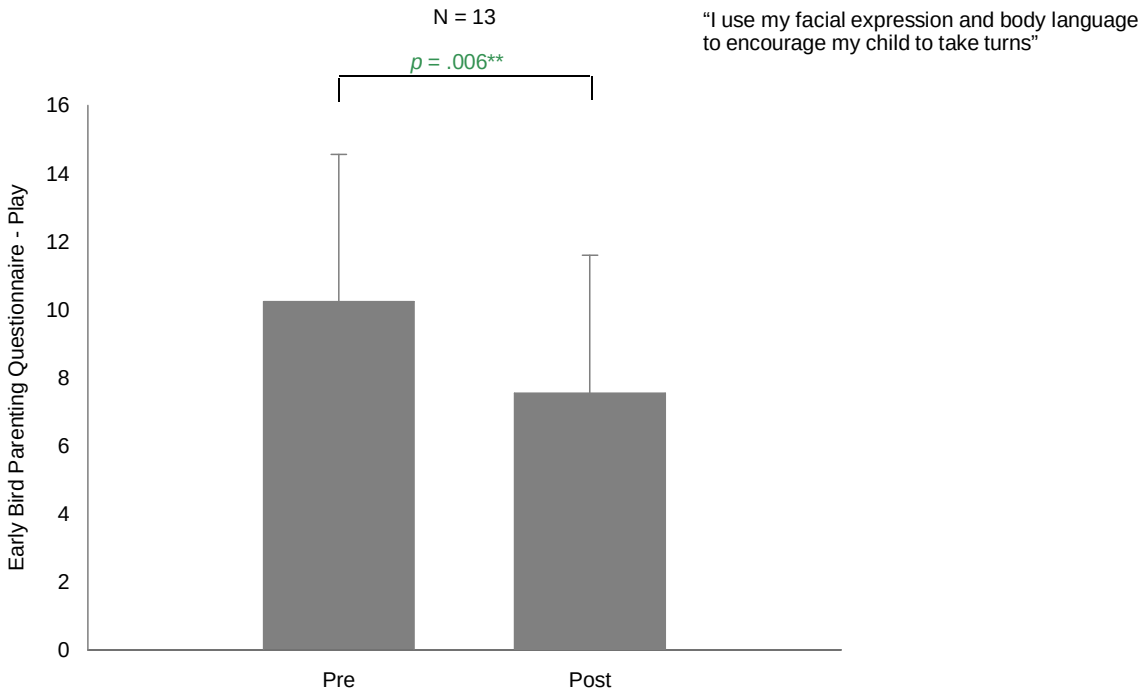

Figure 10. Pre to post changes on the EBPQ "*Play*" index. Higher scores indicate a higher degree of pathology. In the top right corner, an example item is presented.

** = p <.01

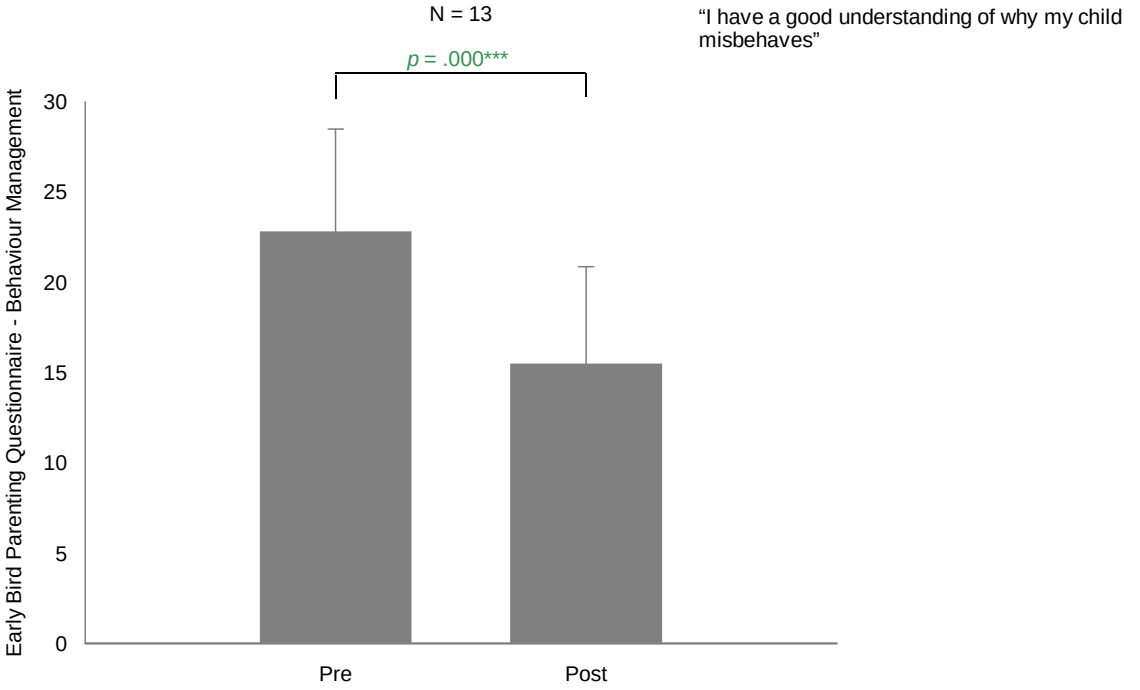

Figure 7. Pre to post changes on the EBPQ "*Behaviour Management*" index. Higher scores indicate a higher degree of pathology. In the top right corner, an example item is presented.

*** = p <.001

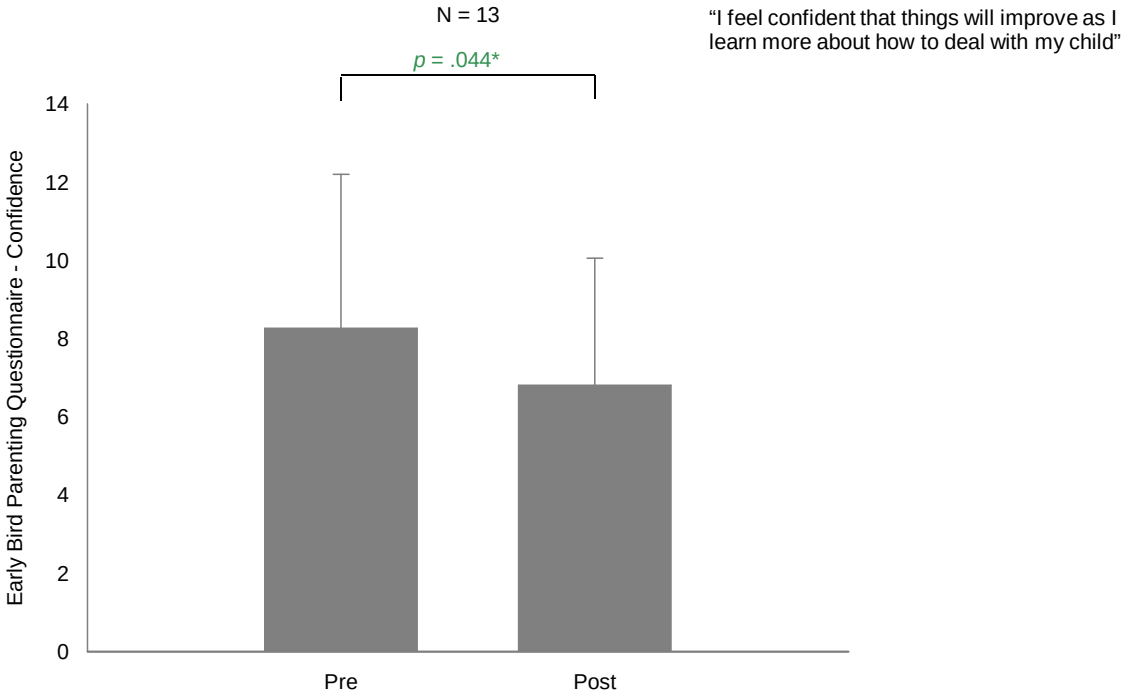

Figure 8. Pre to post changes on the EBPQ "*Confidence*" index. Higher scores indicate a higher degree of pathology. In the top right corner, an example item is presented.
* = p <.05

In summary, there was some evidence for the courses' immediate impact on measures of parental discipline practices, parenting strategies, and self-rated parenting skills. Next, it was of interest whether these effects were maintained at follow-up.

Long-term impact.

At follow-up, the courses' effects on the AOLPS *"Verbosity"* (t[8] = -.85, p > .05) and EBPQ *"Play"* (t[7] = -1.72, p > .05) and *"Confidence"* (t[7] = -1.53, p > .05) scores were maintained. It is notable, however, that all ratings had increased in severity.

In contrast, effects on the EBPQ *"Total"* (t[7] = -2.10, p < .10), *"Knowledge"* (t[7] = -2.89, p < .05) and *"Behaviour Management"* (t[7] = -4.59, p < .01) scores were not maintained at follow-up.

Descriptive Section

Last, descriptive aspects of the samples were analysed in order to investigate whether the course successfully reached a diverse target population.

The following section describes (1) sociodemographic information as available for the Autumn2010 and Spring2011 courses and (2) the severity of children's dysfunctional behaviours as measured by the SDQ.

Sociodemographic information.

The Autumn2010 course comprised eleven participants (82% of whom were female). The Spring2011 course comprised ten participants, eight of whom provided sociodemographic information (88% of whom were female). On average, participants were 37.44 years old (range = 29 - 49, *SD* = 6.72). Parents in either course did not differ from each other with regard to their age ($t[14] = -1.17$), their children's current age ($t[14] = -0.96$) or their children's age at diagnosis ($t[14] = -0.49$). Due to the small number of cases per cell, "chi square" tests could not be computed to compare sociodemographic indices across groups. However, "Fisher's exact tests" indicated that participants in both groups did not differ on any of the obtained sociodemographic information.

See Table 4 for an overview of sociodemographic data for the total sample.

Table 4. Participants' characteristics (sociodemographic information).

	Total sample (*N* = 19)	
Participants		
	M	*SD*
Age	37.44	6.72
	Count	Percentage
Gender		
Male	3	15.8%
Female	16	84.2%
Ethnicity		
Caucasian	9	56.3%
Black British	5	31.3%
Other	2	13.0%
Marital Status		
Single	5	31.3%
Married	7	43.8%
Cohabiting	3	18.8%
Divorced	1	6.3%
Employed		
Yes	5	31.3%
No	11	68.8%
Education		
BA, BSc	4	26.7%
A-Levels	4	26.7%
GCSE, O-Levels	4	26.7%
Other	3	20.0%
Annual household income / (£k)		
> 50	1	7.1%
40 - 50	2	14.3%
30 - 40	1	7.1%
20 - 30	1	7.1%
15 - 20	1	7.1%
< 15	8	57.1%

Table 4. *(continued)*

Children			
	M	*SD*	
Age	6.69	2.85	
Age at Diagnosis	5.87	2.99	
	Count		Percentage
Gender			
Male	13		81.3%
Female	3		18.8%

Inspection of the sociodemographic data indicated that the majority of course participants were unemployed, caucasian females whose household income fell below the national poverty line (approximately £k17 / year [http://www.cpag.org.uk/povertyfacts/#line]).

Severity of participants' children's dysfunctional behaviours.

Participants' children fell into the severe range on all SDQ symptom indices (see Figure 13). On the pro-social behaviour subscale, participants' children scored between the "normal" and "borderline" cut-off score.

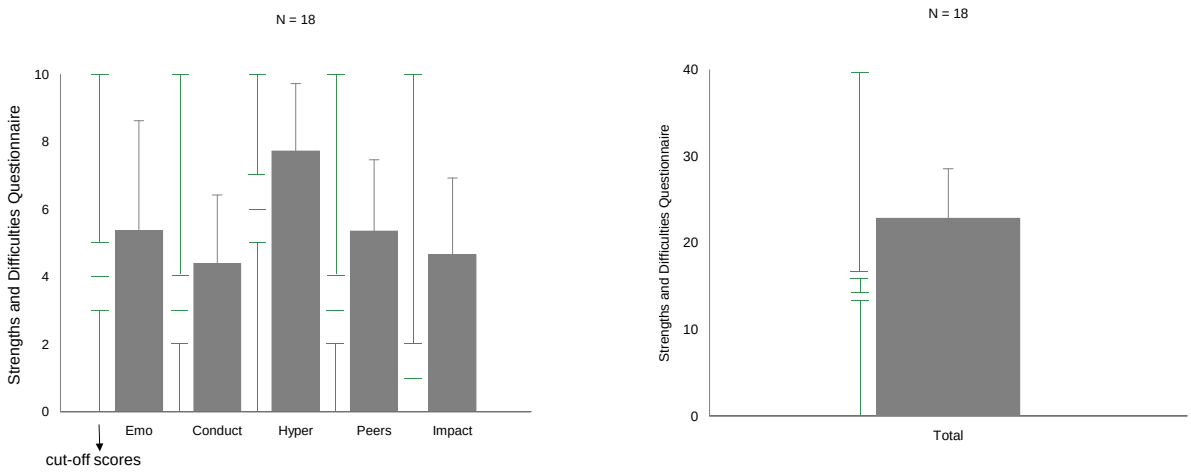

Figure 9. Severity of participants' children's dysfunctional behaviours (SDQ). Higher scores indicate a higher degree of pathology. Bars next to box plots indicate cut-off scores for the normal, borderline or abnormal spectrum (e.g. for the "Emo" subscale, "normal" is defined by a score spectrum ranging from 0 to 2.5, "borderline" as 4 and "abnormal" as ranging from 4.5 to 10). Emo = Emotional Symptoms; Conduct = Conduct Problems; Hyper = Hyperactivity; Peers = Peer Problems.

Discussion

Overall, participants were highly satisfied with the ARD team's parents' course at the Michael Rutter Centre for Children and Young People. Positive ratings were obtained with regard to (1) relevance, usefulness and comprehensibility of the presented information as well as (2) the overall setup and content of the course. These high satisfaction ratings were maintained at follow-up.

Comparing standardised measures, pre vs. post measurements indicated that the parents' course had no significant impact on parents' reported stress levels. This result is unsurprising given that reduction of parental stress was not a primary objective of the course (although high parental stress levels are common in parents of children with ASD [Davis & Carter, 2008; Rao & Beidel, 2009]). Alternatively, the applied measure might have lacked sensitivity to accurately reflect potential changes in parental stress rates (cf. recommendation 1, p. 171).

By contrast, attendance of the course led to a significant reduction of parents' "Verbosity" index on the AOLPS which was maintained at follow-up. This suggests that the course was successful in reducing parents' "reliance on talking even when it is ineffective" (Arnold et al., 1993) and may have provided parents with an improved grasp of behavioural concepts which may be applied to successfully manage their children's behaviour. In contrast, no change was found for the "Total", "Laxness", and "Overreactivity" indices.

On the EBPQ, pre vs. post scores differed significantly on the "Total", "Knowledge", "Behaviour Management", "Play", and "Confidence" indices with the last two being maintained at follow-up. Hence, the parents' course appeared to be successful in having increased parents' understanding of the ways in which children with autism are different from other children by (1) providing parents with strategies to manage their children's behaviour, (2) increasing parents' understanding of the use of play as a means of social interaction with their children and, importantly, (3) improving parents' future perspective, and (4) heightening their optimism and confidence in parenting. There were no significant improvements on the "Communication", "Stress", and "Family Functioning" ratings.

Despite some lasting improvements in parent behaviour, the courses' effects did not tend to be robustly maintained at follow-up. A relatively small number of participants provided data at follow-up, and those who did may constitute a self-selecting sample of participants who may have tended to be more highly satisfied with the course and / or less occupied by competing day-to-day demands.

These results are broadly consistent with the previous audit of the briefer version of the programme (Marsden & Howlin, 2010) and indicate that, as expected, the courses' psychoeducational (vs. psychotherapeutic) focus tends to successfully impact on information-, rather than emotion-related aspects of ASD.

The course was successful in reaching mothers of children with ASD (1) whose incomes lay below the national poverty line and (2) whose children fell into the severe range on SDQ symptom indices. However, despite increased prevalence rates of autism in minority populations (Dealberto, 2011; Keen, Reid, & Arnone, 2010) relatively few parents from ethnic minority populations participated in the course. Also, in light of a growing body of research highlighting fathers' importance in the management of ASD (Flippin & Crais, 2011), the rate of attending fathers was low. Hence, future courses should actively seek to include parents from black and other ethnic minorities as well as fathers of children with ASD.

Limitations

The present study had some limitations. First, the relatively small number of participants across courses (as well as variable rates of available post and / or follow-up data) limited interpretation of the standardised measures of the evaluation section. However, results provide initial insights into the potential efficacy of the 5-day parents' course as a routinely-run psychoeducational intervention within SLaM. Second, parents' attendance and attrition rates varied across both courses and sessions. Hence, effects may not be generalisable to future course attendees. Last, there was no control group and the identified effects may hence have been due to the passing of time or unmeasured parent characteristics. Future research should aim to replicate / refine the results of the present audit by (1) targeting a bigger sample, (2) applying additional standardised outcome measures, (3) controlling for differential drop-out rates, and (4) ideally including a wait-list control group.

Service Recommendations

Recommendations are based on (1) findings from the evaluation and descriptive sections of the present audit and (2) parents' feedback (i.e. the satisfaction section of the study). All recommendations are listed under reserve of feasibility.

Recommendations based on formal results.

- Decide if "parental stress" should become an additional target for the parents' course. If so, (1) include additional modules on parents' well-being (potentially including [i] stress and/or anger-management for parents of children with ASD (cf. Benson and Karlof [2009]); [ii] problem-solving skills or [iii] parent management training [Kazdin & Whitley, 2003]; or [iv] information on how to access resources to cope with psychological difficulties); (2) use a potentially more sensitive questionnaire to measure parental stress (such as the Parenting Stress Index [PSI; Abidin, 1995] or its short-form [PSI-SF; Zaidman-Zait et al., 2011) for children and the Stress Index for Parents [SIPA; Sheras, Abidin, & Konold, 1998] for adolescents and (3) routinely measure parental psychopathology which may interact with parents' elevated stress levels (e.g. using the Symptom Checklist-90-Revised [SCL-90-R; Derogatis, 1994]).
- Provide / refine information on the negative consequences of overpermissiveness, allowing rules to go unenforced, and providing positive consequences for misbehaviour.

- Include additional modules at the end of the course to facilitate the generalisation of information (e.g. "where to go from here" or "how will the new information change my day-to-day life"). These sessions should be very "hands-on" and follow established problem-solving procedures (e.g. [1] outline a realistic and potentially graded list of goals / targets [e.g. focusing on what to do next or differently]; [2] anticipate potential difficulties; and [3] plan strategies for how to overcome these).
- Offer a brief follow-up course, addressing potential difficulties that arose when implementing the given information. This course should be tailored to the implementation of management strategies introduced in the parents' course.
- Actively seek to include parents from black and other ethnic minorities to participate in the parents' course.
- Actively seek to include fathers of children with ASD to participate in the parents' course.

Recommendations based on parents' feedback.[14]

- Continue the current five-day structure of the course.
- Continue to avoid jargon whenever possible.
- Continue to sensitively discuss sexuality in ASD; whilst being aware of potential parent sensitivities.
- Instantiate improved time management within sessions and react more flexibly to time management issues; i.e. (1) provide parents with enough time for discussion, (2) do not create feelings of "rushedness", and (3) adapt the sessions' contents flexibly to maintain time management, improve audience attention / participation and provide parents with opportunities to ask questions without imposing restrictions on allocated break time.
- Allocate more time to practical, "hands-on" group-work, if applicable.
- Offer a brief follow-up course, addressing potential difficulties that arise from trying to implement the given information. This course should be tailored to the implementation of management strategies introduced in the parent's course.
- Offer an additional course, focusing on *parents'* well-being.
- Provide information about differences / commonalities regarding presentation, challenges and management of adolescents with ASD (rather than nursery-aged children only).

[14] See Appendix B1 (p. 182) for full verbatim feedback.

Dissemination of Results

Responsibility for implementing the findings and recommendations of the present audit lies with Dr Janne Karpf and Ms Jenny Ronayne (ARD team at the Michael Rutter Centre for Children and Young People). In addition, results of this audit have been presented to interested SLaM staff, service users and professionals with an interest in Child and Adolescent Mental Health Service (CAMHS) audits and Clinical Governance on the *CAMHS Audit Half Day* on January 27th, 2012. Findings have further been disseminated via a radio interview with Ms Jenny Ronayne on a local radio station.

Reflections

Collecting and compiling data for the present service evaluation project has been rewarding in that the process has provided me with first-hand experience about how different members of a multidisciplinary team (MDT) jointly contribute to an intervention routinely run by SLaM. The process of planning the audit, seeking ethical approval from the local Clinical Governance Project Manager/Officer and linking in data collection with presently running interventions provided valuable insights into (1) ongoing service evaluation processes conducted by SLaM and (2) the trust's continued efforts to optimise its evidence-based service to its users. Last, it has been rewarding to also participate in the parents' course (rather than only evaluating it).

It is gratifying that the present evaluation may contribute to the courses' continued implementation within SLaM. Its strength of combining both qualitative and quantitative data underlines the importance of the parents' course as an intervention that may (among many others) impact on the developmental trajectory of children with ASD. In hindsight, I would have chosen alternative outcome measures whose choice, however, would have had to be balanced against limits of feasibility. Moreover, because return-rates of follow-up data were relatively low, I would attempt to establish the importance of follow-up measures more strongly at the beginning of the course. Overall, conducting this audit provided me with a positive learning experience and I hope that both parents of children with ASD and the service will benefit from the evaluation's findings.

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Appendix

Appendix A: Satisfaction Section - Numerical Values

All scales range from 1 = *not at all* to 5 = *very*.

A1: Relevance.

Session	Total	
	N = 37	
	M	*SD*
1	4.23	.88
2	4.68	.67
3	4.16	1.01
4	4.37	.88
5	4.36	.93
6	4.29	.83
7	4.56	.61
8	4.31	.93
Overall	4.38	.09

A2: Informativeness.

Session	Total	
	N = 37	
	M	*SD*
1	3.86	.94
2	4.59	.64
3	4.22	.92
4	4.26	.78
5	4.51	.66
6	4.49	.61
7	4.39	.69
8	4.47	.72
Overall	4.36	.44

A3: Clarity of presentation.

Session	Total	
	N = 37	
	M	*SD*
1	4.26	1.01
2	4.76	.50
3	4.49	.61
4	4.43	.74
5	4.53	.56
6	4.34	.80
7	4.53	.61
8	4.69	.54
Overall	4.51	.43

A4: Worthiness of future repetition.

Session	Total	
	N = 37	
	M	*SD*
1	4.40	.81
2	4.73	.61
3	4.49	.73
4	4.54	.74
5	4.67	.68
6	4.53	.75
7	4.83	.45
8	4.63	.75
Overall	4.60	.52

A5: Satisfaction with allowed time for each session.

Session	Total	
	N = 37	
	M	*SD*
1	2.91	.74
2	2.92	1.01
3	2.89	.84
4	3.09	.78
5	3.03	.51
6	2.86	.88
7	2.67	.83
8	3.22	.55
Overall	2.95	.47

Appendix B: Satisfaction Section - Qualitative Feedback

B1: Post.

Session 1 [Genetics]
Positive - It was very interesting to hear about the genetic research especially brain size as this was new to me - Very interesting - thank you - Very informative, however, it was a lot of information to process in 2 hours without a break - Cleared a lot of my concerns about what happened at birth and no links to autism - Great start to the course - Very useful learnt a lot
Negative - This was quite an intense session and a little hard to follow at times - Room too small - Presenters need to speak up louder - Very dull boring tone of voice
Suggestions - It could have done with another 10 minutes of questions at the end - Better to sit in a circle - feel part of a group rather than in rows; childcare should be provided; and light lunch - Less jargon - Better slides to understand genetics better
Session 2 [Understanding ASD]
Positive - Great, so helpful to parents having a talk by a professional and parent with a child with ASD - Fantastic! - Was a fun session to sit through, very jargon free so was easy to understand. Made relevant by the scenarios and stories - Excellent presentation, clear informative and humorously presented - Presented in a very entertaining way - This session was very informative- it captured my interest and made me learn things to help my son and me work together - Great session! Great speaker! - The session is very well presented and was extremely informative - Excellent!
Negative - Felt slightly rushed - A little more time for questions would have been helpful
Suggestions - There is quite a lot of information and therefore perhaps a shorter follow-up course would aid understanding - Perhaps age could be taken into account i.e. a course for children 0-8 and another for 8-15 years!!!

B1: Post. (*continued*)

Session 3
[Welfare Rights and Benefits]
Positive
- Thank you. It was very helpful - Very informative and very useful, gave great insight to what help is available - Very important and interesting lesson but could have done with more time - Information was clear and questions were answered in full detail - Very helpful and informative - Helpful - This session was brilliant and opened my eye to see what I need to do. Also I discovered many information that would be of help to my child
Suggestions
- It may have been helpful to have specific names / numbers of specific boroughs where Lewisham carers offer 8-12 hours free respite care a month - Maybe also time for parents to share the info they have or the support that they get
Session 4
[Education, Rights and Statementing]
Positive
- Very informative, made me realise things the school are not doing that they should be - Helpful with dealing with school - Very good to understand process - Again very helpful and a well structured environment - Session was very good - This session is well presented and very clear excellent. Most parents are suffering out there because of lack of information on what to do after diagnosis or how to go about what to do to fight for the right of their child(ren)
Negative
- This was an incredible amount of info to take in. I would have liked more info on "provision in the classroom" and how do I tell if this is enough for my child - No air in the room today - difficult to concentrate
Suggestions
- It may have been useful to have had time to discuss any specific issues. Perhaps parents could write issues on post-it notes and address either in a group or individually. - Needs more time for parents to talk after each presentation- maybe a longer lunch - Would be good to have a separate course to teach strategies to deal with school and statementing. Could involve invitation sent to SENCO or teacher to join the course to open their eyes to the fact that it is invisible does not mean there are no issues underneath i.e.: iceberg scenario - Questions answered well, would have been nice if we had the resource packs to take home - PARENTS course on coping management, stress management for PARENTS - It may be helpful to divide this session for primary & secondary school children

B1: Post. (*continued*)

Session 5
[Transition]
Positive
- Excellent. Thank you very much. So great again to hear "case study" type info and to hear it from experience - This was very helpful - Very well presented - Good interactive session - Absolutely agree that this is a very important issue - Good session - Found this useful
Suggestions
- I really enjoyed this session. If i may suggest, that a leaflet can be produced on transitions from home - nursery - within key stages - 2ndary school - college/uni for parents to know what to do and how to prepare their children ahead of it.
Session 6
[Communication]
Positive
- Fantastic, it was a shame we ran out of time for discussion - I felt that the speaker was v. knowledgeable about how speech develops and communication in general - This was very interesting and helpful
Negative
- Whole day was a bit too slow, speaker was not as lively. Speaker seems to not be prepared for the course!
Suggestions
- Would have been useful for speaker to give handouts to give to teachers. - The room was very hot and very small to do workshops- maybe look in to having another bigger room - I felt that there was a lot to cover and some parents seemed to need more explanations on certain methods - May have been useful to have examples of social story in handout. - It may be useful - especially if teachers/ TA's attend - to explain what pupils may be trying to communicate when displaying challenging behaviours. What is the function of the behaviour? Maybe split day: half communication and half behaviour linked - Need more time! - I think that the focus on aids for children for learning and communicating at school needs to look toward children at either primary or secondary as it was mainly aimed at children from nursery - It seemed very geared towards younger children - probably not so great for parents of teenagers who've missed out at early stages of appropriate help. Maybe a talk by someone from a secondary school would have been helpful - Would be good to have a course 6 months to a year later to monitor progress and any issues etc.

B1: Post. (*continued*)

Session 7

[Behaviour Management]

Positive

- This was one of the most useful sessions to me this week
- It is good to remember that some children may need to experience something good, for example, to have some type of reward first and to put them in the right space to "be good" and to work towards getting a different reward because of when they are in the "bad form" it may be too difficult for them to try to do the appropriate thing

Negative

- I think there may have been too much on the slides as we have these handouts as well

Suggestions

- The group discussions were extremely helpful, but maybe each area could have been discussed as one big group rather than breaking away
- May be useful to have more discussion regarding links
- Expertise of someone with experience and skills in behaviour management would have been useful
- Listening to a parent of an older child who has tried many strategies may have been more useful
- Dealing with the aftermath of physical aggression would be worth addressing. How to manage biting / hitting etc. whilst it happens - restraining?
- Destressing strategies for parents and children would be useful

Session 8

[ASD, Puberty and Sexuality]

Positive

- It was good to listen to an AS person and see the positive sides of the condition and that things can be good in the future
- Very helpful
- Great examples
- Great. Fab speakers! Helped/gave me a really good insight of a young person with autism
- Found this topic good in advance
- I put my hand up for you not to show the DVD, but as one of the other parents said its realistic and its something that we need to know. I do find it more difficult to see adults dealing with ASD. So yes now I would agree for it to be seen as it has to help other parents preventing their children from becoming the DVD

Negative

- I found the DVD quite difficult to watch today as it aroused a few feelings that as a parent I find difficult to deal with
- I found the DVD on adults very depressing and bleak personally. I found it very upsetting and felt that it may not be the best DVD to show especially on the last day, even though I know that it is reality we need something uplifting or positive
- The video was a little hard to watch but it can give an insight into the difficulties of late diagnoses

Suggestions

- I think that it would be helpful to have an introduction to the DVD NHS An Aspergers life as it was a very emotional DVD, maybe make it clear at the beginning that your child probably won't turn out like this because of early diagnosis, parent support etc.

B1: Post. (*continued*)

Overall
Positive
- I found this workshop very useful and informative and I would like to attend any other workshops in the future. I have obtained some useful info and knowledge which would otherwise have been very difficult for me to obtain, just hope I can build on the knowledge that I have been taught - The parents sharing info is very powerful and good! Prompt us to reflect on what we have heard at home with our child. - When we arrive we are anxious and feel inadequate in terms of knowledge and what we should be doing, this gives us a positive or at least balanced view of what we can do - I think the speakers are very welcoming, knowledgeable and more importantly passionate about what they do! - The topics are relevant and helpful in understanding my child with ASD. Thanks ever so much for this training for parents and teachers to learn how you can help yourself and help your child through the journey of ASD - This has been an invaluable experience during what has been a confusing and emotional experience. Sharing experiences and realising that other people are going through the same things and finding solutions has been really helpful - I feel I have gained a lot of knowledge - Thank you so much. I have found this course to be extremely informative and helpful. The speakers have all been so knowledgeable and very amenable to questions - It has also been good to meet other parents. I have learnt so much about autism and ASD and it been a valuable opportunity. Thank you - I just want to thank you so much, I learned so much and I am now going away pleased knowing that I have gained more information on ASD. Thank you so much - This course has been very enlightening. It was helpful meeting other parents with similar situations with a child on the spectrum. The course has made me think more about my role, as a parent to advocate for me child and how I can best help and understand him. Thank you very much - This course has been very enlightening. It was helpful meeting other parents with similar situations with a child on the spectrum. The course has made me think more about my role, as a parent to advocate for my child and how I can best help and understand him. Thank you very much - Very useful and very well presented course. I appreciate that there is now much more help for ASD - Thank you for the information you have given over this week. All the people on the course have been helpful and supportive. I particularly found the behaviour group work really helpful - Overall this course has been so helpful and informative to get tips to work on at home, meet people in the same situation and chance to talk to experts - All week very intensive and helpful. Hopefully we will manage to digest some of the things given. I think we received more than expected - This is a very good programme. I personally enjoyed every session, well presented by knowledgeable and experienced people and the environment is very neat, nice and comfortable. The course is excellent
Negative
- Very squashed room making it warm and stuffy - Some of the topics are very interesting but there was not enough time for discussion - Some of the sessions seemed a little long & repetitive - I found some speakers too quiet to hear so did affect listening

B1: Post. (*continued*)

Suggestions
- I have found it a lot to take in, possible because my son's diagnosis was recent and have found it quite intense and emotional. I would have liked the course to have been more specific to AS perhaps as this is my son's diagnosis. I realise that a lot of the spectrum have similar problems but thought that perhaps you could do half day on AS and half day on low functioning autism so that parents could attend their particular area of interest - Ensure all speakers speak up so everyone can hear them, we can't all sit at the front

B2: Follow-up.

Positive

- This course was invaluable to me and I still refer to my notes now
- Course was the most important and the most professional course I have been attending so far. Well, very well don! Thank you very much
- Very knowledgeable speakers. Very good course
- The DVD shown at the end of the course was a real eye opener and made me realise how serious ASD is and can be if not understood. After watching the DVD, I attended a sex education info class for parents at my son's school - I would never have attended before. I fought his school for extra support - they said he didn't need any but I insisted. Basically, I am more involved in ASD groups. Thank you for all your hard work in helping us
- Thank you very much. Valuable course
- I felt the course gave me invaluable knowledge and advice, it exceeded my expectations and I would highly recommend the course to anyone I know with a child recently diagnosed with ASD
- The course was an eye opener for myself and learnt a lot from the course; some of the strategies I have learnt have been of some help
- I think it is great that you are offering a great opportunity for teachers and teacher's assistants to attend this five day course
- Very useful indeed in understanding more about the way my son's mind works - though we often find ourselves slipping back into judging him by a normal child's standards; it is great we can then tell ourselves no, he may be doing this because of this, etc.etc.
- I found the course invaluable and have already recommended it to another panic stricken mother!

Suggestions

- It might be worthy to follow up course with 2-days workshop and lectures; 2 days made for separate slots
- It would be better if future courses were aimed at specific age ranges, as some of the topics covered were either for children much younger or much older than mine
- If parking was arranged, it would encourage more parents to attend
- It would be nice to have a "refreshment course" as it is a lot to take in

Appendix C: Evaluation Section - Numerical Values

C1: Perceived Stress Scale.

Timepoint	Pre (*N* = 19)		Post (*N* = 14)		Follow-Up (*N* = 9)	
	M	*SD*	*M*	*SD*	*M*	*SD*
			Perceived Stress [Perceived Stress Scale]			
	23.26	5.91	23.48	4.73	23.19	6.79

C2: Arnold and O'Leary Parenting Scale.

Timepoint	Pre (*N* = 19)		Post (*N* = 14)		Follow-Up (*N* = 9)	
	M	*SD*	*M*	*SD*	*M*	*SD*
			Dysfunctional parental discipline practices [Arnold and O'Leary Parenting Scale]			
Total	96.14	17.03	90.90	18.98	91.60	14.75
Laxness	30.49	11.17	30.43	8.89	31.47	7.25
Overreactivity	29.14	7.32	29.06	10.12	27.56	7.75
Verbosity	27.59	5.62	22.95	5.20	23.87	6.52

C3: Early Bird Parenting Questionnaire.

Timepoint	Pre (*N* = 19)		Post (*N* = 13)		Follow-Up (*N* = 9)	
	M	*SD*	*M*	*SD*	*M*	*SD*
			Dysfunctional parenting strategies [Early Bird Parenting Questionnaire]			
Total	88.54	22.15	76.34	20.28	83.71	17.93
Knowledge about Autism	10.05	2.72	7.38	3.04	8.56	2.46
Communication	14.01	5.32	12.92	4.13	14.56	4.48
Play	9.42	4.35	7.54	4.05	7.89	2.47
Behaviour Management	22.12	5.51	15.46	5.39	19.87	4.58
Confidence	8.75	4.20	6.81	3.25	8.11	2.37
Stress	11.00	4.90	11.46	3.26	10.56	4.64
Family Functioning	14.61	3.94	14.77	3.61	14.22	4.87

Appendix D: Description Section - Numerical Values

D1: Strengths and Difficulties Questionnaire.

	Total (N = 18)		
	M	*SD*	Classification
	Children's dysfunctional behaviours [Strengths and Difficulties Questionnaire]		
Total Difficulties	22.82	5.75	abnormal
Emotional Symptoms	5.36	3.25	normal - abnormal
Conduct Problems	4.39	2.03	normal - abnormal
Hyperactivity	7.72	1.99	borderline - abnormal
Peer Problems	5.35	2.11	borderline - abnormal
Prosocial Behaviour	5.71	2.21	normal - abnormal
Impact	4.65	2.27	moderate - high

Appendix E: Satisfaction Questionnaires [Example]

Learning about autism

A five-day post-diagnostic course on Autism Spectrum Disorder (ASD) for Parents and Carers. This form should only take you a minute or two to complete - please do so as this will enable us to tailor future programmes to best meet parents' requirements.

Session X [Topic]

1. The information in this session was relevant to me (please circle appropriate box)

NOT AT ALL VERY MUCH

1	2	3	4	5

2. The information has added to my understanding of ASD and communication needs

NOT AT ALL VERY MUCH

1	2	3	4	5

3. The information was presented in a clear manner

NOT AT ALL VERY MUCH

1	2	3	4	5

4.The session is worth repeating in future courses

NOT AT ALL VERY MUCH

1	2	3	4	5

5. The time allowed for this session's topic was:

NOT ENOUGH JUST RIGHT TOO MUCH

1	2	3	4	5

6. Any other comments on how this session could be improved?

Appendix F: Self-Report Questionnaires

F1: Perceived Stress Scale.

Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts **during the last month**. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

Name _____ Date _____

Age _____ Gender (*Circle*): **M F** Other _____

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?	0	1	2	3	4
2. In the last month, how often have you felt that you were unable to control the important things in your life?	0	1	2	3	4
3. In the last month, how often have you felt nervous and "stressed"?	0	1	2	3	4
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	0	1	2	3	4
5. In the last month, how often have you felt that things were going your way?	0	1	2	3	4
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	0	1	2	3	4
7. In the last month, how often have you been able to control irritations in your life?	0	1	2	3	4
8. In the last month, how often have you felt that you were on top of things?	0	1	2	3	4
9. In the last month, how often have you been angered because of things that were outside of your control?	0	1	2	3	4
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4

Please feel free to use the *Perceived Stress Scale* for your research.

References

The PSS Scale is reprinted with permission of the American Sociological Association, from Cohen, S., Kamarck, T., and Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24,* 386-396.

Cohen, S. and Williamson, G. Perceived Stress in a Probability Sample of the United States. Spacapan, S. and Oskamp, S. (Eds.) *The Social Psychology of Health.* Newbury Park, CA: Sage, 1988.

F2: Arnold and O'Leary Parenting Scale.

Parent to complete

ID
Date

ARNOLD & O'LEARY PARENTING SCALE

Parents have many different ways of dealing with these types of problems. Below are items that describe some styles of parenting.

For each item, fill in the circle that best describes your style of parenting during the past two months with the child indicted above.

SAMPLE ITEM

At meal time....

I let my child decide how much to eat	0--0--0--0--0--0--0	I decide how much my child eats

---

1. When my child misbehaves...

I do something right away.	0--0--0--0--0--0--0	I do something about it later

2. Before I do something about a problem...

I give my child several reminders or warnings	0--0--0--0--0--0--0	I use one reminder or warning.

3. When I'm upset or under stress ...

I am picky and on my child's back	0--0--0--0--0--0--0	I am no more picky than usual.

4. When I tell my child not to do something...

I say very little	0--0--0--0--0--0--0	I say a lot.

5. When my child pesters me...

I can ignore the pestering.	0--0--0--0--0--0--0	I can't ignore the pestering.

6. When my child misbehaves...

I usually get into a long argument with my child.	0--0--0--0--0--0--0	I don't get into an argument

F2: Arnold and O'Leary Parenting Scale. (*continued*)

7. I threaten-to do things that...

I am sure I can carry out 0--0--0--0--0--0--0 I know I won't actually do

8. I am the kind of parent that...

Sets limits on what my child is allowed to do 0--0--0--0--0--0--0 Let's my child do whatever he or she wants.

9. When my child misbehaves...

I give my child a long lecture 0--0--0--0--0--0--0 I keep my talks short and to the point.

10. When my child misbehaves...

I raise my voice or yell 0--0--0--0--0--0--0 I speak to my child calmly

11. If saying no doesn't work right away...

I take some other kind of action 0--0--0--0--0--0--0 I keep talking and try to get through to my child.

12. When I want my child to stop doing something...

I firmly tell my child to stop. 0--0--0--0--0--0--0 I coax or beg my child to stop

13. When my child is out of my sight...

I often don't know what my child is doing 0--0--0--0--0--0--0 I always have a good idea what my child is doing.

14. After there's been a problem with my child...

I often hold a grudge 0--0--0--0--0--0--0 Things get back to normal quickly.

15. When we're not at home...

I handle my child the way I do at home 0--0--0--0--0--0--0 I let my child get away with a lot more

16. When my child does something I don't like...

I do something about it every time it happens 0--0--0--0--0--0--0 I often let it go

F2: Arnold and O'Leary Parenting Scale. (*continued*)

17. When there's a problem with my child...

Things build up and I do things I don't mean to do	0--0--0--0--0--0--0	Things don't get out of hand

18. When my child misbehaves, I spank, slap, grab or hit my child...

Never or rarely	0--0--0--0--0--0--0	Most of the time

19. When my child doesn't do what I ask...

I often let it go or end up doing it myself	0--0--0--0--0--0--0	I take some other action

20. When I give a fair threat or warning...

I often don't carry it out	0--0--0--0--0--0--0	I always do what I said

21. If saying no doesn't work...

I take some other kind of action	0--0--0--0--0--0--0	I offer my child something nice so he/she will behave

22. When my child misbehaves...

I handle it without getting that upset	0--0--0--0--0--0--0	I get so frustrated or angry my child can see I'm upset

23. When my child misbehaves...

I make my child tell me why he/she did it	0--0--0--0--0--0--0	I say "no" or take some other action

24. If my child misbehaves and then acts sorry...

I handle the problem like I usually would	0--0--0--0--0--0--0	I let it go that time

25. When my child misbehaves...

I rarely use bad language or curse	0--0--0--0--0--0--0	I almost always use bad language

26. When I say my child can't do something ...

I let my child do it anyway	0--0--0--0--0--0--0	I stick to what I say.

F2: Arnold and O'Leary Parenting Scale. (*continued*)

27. When I have to handle a problem ...

I tell my child I'm sorry about it. **0--0--0--0--0--0--0** I don't say sorry.

28. When my child does something I don't like, I insult my child, say mean things or call my child names…

Never or rarely **0--0--0--0--0--0--0** Most of the time.

29. If my child talks back or complains when I handle a problem…

I ignore the complaining and stick to what I said **0--0--0--0--0--0--0** I give my child a talk about not complaining.

30. If my child gets upset when I say "No" ...

I back down and give in to my child **0--0--0--0--0--0--0** I stick to what I said.

Developed by Susan G. O'Leary, David S. Arnold, Lisa S. Wolff & Maureen M. Acker
Psychology Dept. University at Stony Brook, Stony Brook, NY 11794.

F3: Early Bird Parenting Questionnaire.

EarlyBird Parent Questionnaire Form

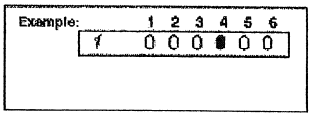
NOTE: This questionnaire takes approximately 10 minutes.
Please set aside 10 minutes to sit down in a quiet place to answer it thoughtfully.

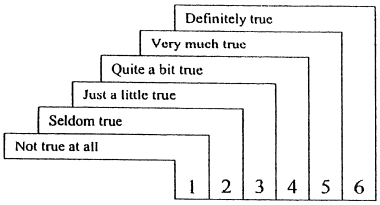
Parenting a child with autism is a challenging job. We are interested in personal experiences, views or beliefs around parenting your child with autism.

Please rate each item according to how TRUE the following statements are for you by using the following scale:

1 = Not true at all	3 = Just a little true	5 = Very much true
2 = Seldom true	4 = Quite a bit true	6 = Definitely true

For each question, fill in *one* bubble completely with black/blue pen or pencil. If you change your mind, put a X through that response, and fill in the *one* bubble you want to be counted.

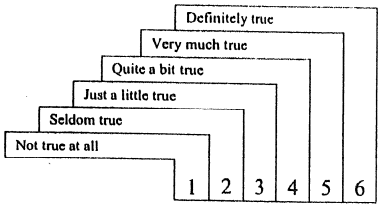




		1	2	3	4	5	6
1	I understand ways in which my child experiences the world differently from children without autism.	0	0	0	0	0	0
2	I understand how autism influences my child's learning.	0	0	0	0	0	0
3	I have a good understanding of why my child communicates the way he/she does.	0	0	0	0	0	0
4	I can reflect on how I communicate with my child and change this accordingly.	0	0	0	0	0	0
5	I warn my child before introducing something new.	0	0	0	0	0	0
6	I match my language to a level my child understands.	0	0	0	0	0	0
7	I wait until my child responds before I say something else.	0	0	0	0	0	0
8	When I talk to my child I give him/her one instruction at a time.	0	0	0	0	0	0
9	I use my facial expression and body language to encourage my child to take turns.	0	0	0	0	0	0

F3: Early Bird Parenting Questionnaire. (*continued*)

EarlyBird Parent Questionnaire Form



	1	2	3	4	5	6
10 I know some games that I can play with my child that will teach him.	0	0	0	0	0	0
11 There are some games my child enjoys playing with me.	0	0	0	0	0	0
12 I have a good understanding of why my child misbehaves.	0	0	0	0	0	0
13 I use structure and visual cues to prevent or minimise problem behaviour.	0	0	0	0	0	0
14 I structure daily activities to minimise problem behaviour.	0	0	0	0	0	0
15 When my child has a tantrum I have a number of effective strategies.	0	0	0	0	0	0
16 I am able to change my child's behaviour by the way I react to it.	0	0	0	0	0	0
17 Looking at the triggers and results of my child's behaviour is helpful in managing him/her.	0	0	0	0	0	0
18 My child with autism dominates my life.	0	0	0	0	0	0
19 I feel trapped by the long-term responsibility of having a child with autism.	0	0	0	0	0	0
20…I feel confident that things will improve as I learn more about how to deal with my child.	0	0	0	0	0	0
21 I desperately need more help with parenting my child with autism.	0	0	0	0	0	0
22…I believe that I have some control over the future outcomes for my child.	0	0	0	0	0	0
23 I feel I can improve my child's condition and future prospects.	0	0	0	0	0	0
24 My family functions well as a unit.	0	0	0	0	0	0
25 My child with autism dominates family life.	0	0	0	0	0	0
26…The needs of other family members are met most of the time.	0	0	0	0	0	0
27 The people involved in my child's care are in agreement on how to help or manage him/her.	0	0	0	0	0	0

F4: Strengths and Difficulties Questionnaire [age 3-4]

Strengths and Difficulties Questionnaire P 3/4

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of the child's behaviour over the last six months.

Child's Name ..... Male/Female

Date of Birth.....

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	☐	☐	☐
Restless, overactive, cannot stay still for long	☐	☐	☐
Often complains of headaches, stomach-aches or sickness	☐	☐	☐
Shares readily with other children (treats, toys, pencils etc.)	☐	☐	☐
Often has temper tantrums or hot tempers	☐	☐	☐
Rather solitary, tends to play alone	☐	☐	☐
Generally obedient, usually does what adults request	☐	☐	☐
Many worries, often seems worried	☐	☐	☐
Helpful if someone is hurt, upset or feeling ill	☐	☐	☐
Constantly fidgeting or squirming	☐	☐	☐
Has at least one good friend	☐	☐	☐
Often fights with other children or bullies them	☐	☐	☐
Often unhappy, down-hearted or tearful	☐	☐	☐
Generally liked by other children	☐	☐	☐
Easily distracted, concentration wanders	☐	☐	☐
Nervous or clingy in new situations, easily loses confidence	☐	☐	☐
Kind to younger children	☐	☐	☐
Often argumentative with adults	☐	☐	☐
Picked on or bullied by other children	☐	☐	☐
Often volunteers to help others (parents, teachers, other children)	☐	☐	☐
Can stop and think things out before acting	☐	☐	☐
Can be spiteful to others	☐	☐	☐
Gets on better with adults than with other children	☐	☐	☐
Many fears, easily scared	☐	☐	☐
Sees tasks through to the end, good attention span	☐	☐	☐

Do you have any other comments or concerns?

Please turn over - there are a few more questions on the other side

F4: Strenghts and Difficulties Questionnaire [age 3-4]. (*continued*)

Overall, do you think that your child has difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

No	Yes-minor difficulties	Yes-definite difficulties	Yes-severe difficulties
☐	☐	☐	☐

If you have answered "Yes", please answer the following questions about these difficulties:

- How long have these difficulties been present?

Less than a month	1-5 months	6-12 months	Over a year
☐	☐	☐	☐

- Do the difficulties upset or distress your child?

Not at all	Only a little	Quite a lot	A great deal
☐	☐	☐	☐

- Do the difficulties interfere with your child's everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
HOME LIFE	☐	☐	☐	☐
FRIENDSHIPS	☐	☐	☐	☐
LEARNING	☐	☐	☐	☐
LEISURE ACTIVITIES	☐	☐	☐	☐

- Do the difficulties put a burden on you or the family as a whole?

Not at all	Only a little	Quite a lot	A great deal
☐	☐	☐	☐

Signature ..... Date .....

Mother/Father/Other (please specify:)

Thank you very much for your help

F5: Strengths and Difficulties Questionnaire [age 4-16]

Strengths and Difficulties Questionnaire P 4-16

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of the child's behaviour over the last six months.

Child's Name ..... Male/Female

Date of Birth.....

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	☐	☐	☐
Restless, overactive, cannot stay still for long	☐	☐	☐
Often complains of headaches, stomach-aches or sickness	☐	☐	☐
Shares readily with other children (treats, toys, pencils etc.)	☐	☐	☐
Often has temper tantrums or hot tempers	☐	☐	☐
Rather solitary, tends to play alone	☐	☐	☐
Generally obedient, usually does what adults request	☐	☐	☐
Many worries, often seems worried	☐	☐	☐
Helpful if someone is hurt, upset or feeling ill	☐	☐	☐
Constantly fidgeting or squirming	☐	☐	☐
Has at least one good friend	☐	☐	☐
Often fights with other children or bullies them	☐	☐	☐
Often unhappy, down-hearted or tearful	☐	☐	☐
Generally liked by other children	☐	☐	☐
Easily distracted, concentration wanders	☐	☐	☐
Nervous or clingy in new situations, easily loses confidence	☐	☐	☐
Kind to younger children	☐	☐	☐
Often lies or cheats	☐	☐	☐
Picked on or bullied by other children	☐	☐	☐
Often volunteers to help others (parents, teachers, other children)	☐	☐	☐
Thinks things out before acting	☐	☐	☐
Steals from home, school or elsewhere	☐	☐	☐
Gets on better with adults than with other children	☐	☐	☐
Many fears, easily scared	☐	☐	☐
Sees tasks through to the end, good attention span	☐	☐	☐

Do you have any other comments or concerns?

Please turn over - there are a few more questions on the other side

F5: Strenghts and Difficulties Questionnaire [age 4-16]. (*continued*)

Overall, do you think that your child has difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

No	Yes-minor difficulties	Yes-definite difficulties	Yes-severe difficulties
☐	☐	☐	☐

If you have answered "Yes", please answer the following questions about these difficulties:

- How long have these difficulties been present?

Less than a month	1-5 months	6-12 months	Over a year
☐	☐	☐	☐

- Do the difficulties upset or distress your child?

Not at all	Only a little	Quite a lot	A great deal
☐	☐	☐	☐

- Do the difficulties interfere with your child's everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
HOME LIFE	☐	☐	☐	☐
FRIENDSHIPS	☐	☐	☐	☐
CLASSROOM LEARNING	☐	☐	☐	☐
LEISURE ACTIVITIES	☐	☐	☐	☐

- Do the difficulties put a burden on you or the family as a whole?

Not at all	Only a little	Quite a lot	A great deal
☐	☐	☐	☐

Signature ..... Date .....

Mother/Father/Other (please specify:)

Thank you very much for your help

F6: General Information Questionnaire.

Name:		Date:	

In the following, we kindly ask you to provide us with some information about **yourself**.

All information is completely confidential and protected by the Data Protection Act 1998.

1.	What is your date of birth?	_ _ / _ _ / _ _ (DD/MM/YY)	
2.	What is your gender?	□ Male □ Female	
3.	What is your ethnic background?	□ Caucasian (white) □ Pacific Asian □ Indian / Pakistani / Bangladeshi □ Black (caribbean, african, other) □ Other [*Please specify*] _	
4.	What is your marital status?	□ Single □ Married □ Cohabiting □ Divorced □ Widowed	
5.	Are you currently employed? [*Please tick all boxes that apply*]	□ Yes	□ No
		□ Full-time □ Part-time □ Self-employed □ Full-time student □ Housewife / Househusband □ Other [*Please specify*] _ _ _ _ _ _ _ _ _ _ _	□ On sick leave □ Receiving disability benefits □ Retired □ Other [*Please specify*] _ _ _ _ _ _ _ _ _ _ _
6.	What is your job / course? [If unemployed / retired: What was your last job?]	_ _	

F6: General Information Questionnaire. (*continued*)

7.	What is your highest educational qualification?	□ PhD, Dr, Dphil □ MA, MSc, Mphil, MBA □ BA, BSc, Bed □ A-levels or equivalent □ GCSE, O levels, GNVQ □ No formal qualifications □ Other [*Please specify*] _
8.	What is your approximate annual net household income?	□ Over £50,000 □ £40.000 to £50.000 □ £30.000 to £40.000 □ £20.000 to £30.000 □ £15.000 to £20.000 □ £10.000 to 15.000 □ £5000 to £10.000 □ Less than £5000
9.	How many persons are dependent on this income?	 _ _

F6: General Information Questionnaire. (*continued*)

In the following, we kindly ask you to provide us with some information about **your child**. Please remember that all information is completely confidential.

1.	What is your child's date of birth?	_ _ / _ _ / _ _ (DD/MM/YY)	
2.	What is your child's gender?	□ Male □ Female	
3.	What was your child's age at diagnosis? [If applicable]	_ _	
4.	Which school does your child currently attend? [*Please tick all boxes that apply*]	□ Primary school □ Public □ Private □ Special needs [*Please specify*] _ _ _ _ _ _ _ _ _ _ _ _ □ Other [*Please specify*] _ _ _ _ _ _ _ _ _ _ _ _	□ Secondary school □ Public □ Private □ Special needs [*Please specify*] _ _ _ _ _ _ _ _ _ _ _ _ □ Other [*Please specify*] _ _ _ _ _ _ _ _ _ _ _ _

Appendix G: Amendments to Early Bird Parenting Questionnaire Scoring

The EPBQ (Anderson, 2006) is a well-developed 27-item questionnaire measuring dysfunctional parenting strategies. However, due to inaccuracies in its scoring section, the report remains unpublished. The present study applied the following amended scoring criteria (cf. Marsden & Howlin, 2010):

	Original report	Corrections / Amendments (applied in the present study)
Total number of items	25	27
Scale indices [Items]		
Knowledge	1 - 4	1 - 3
Communication	5 - 8	4 - 8
Play	9 - 11	9 - 11
Behaviour Management	12 - 15	12 - 17
Stress	16 - 19	18; 19; 21
Confidence	20 - 22	20; 22; 23
Family Functioning	23 - 25	24 - 27
Negatively-worded items (needing to be recoded)	16; 17; 18; 19	18; 19; 21; 25

To Gudrun and my father